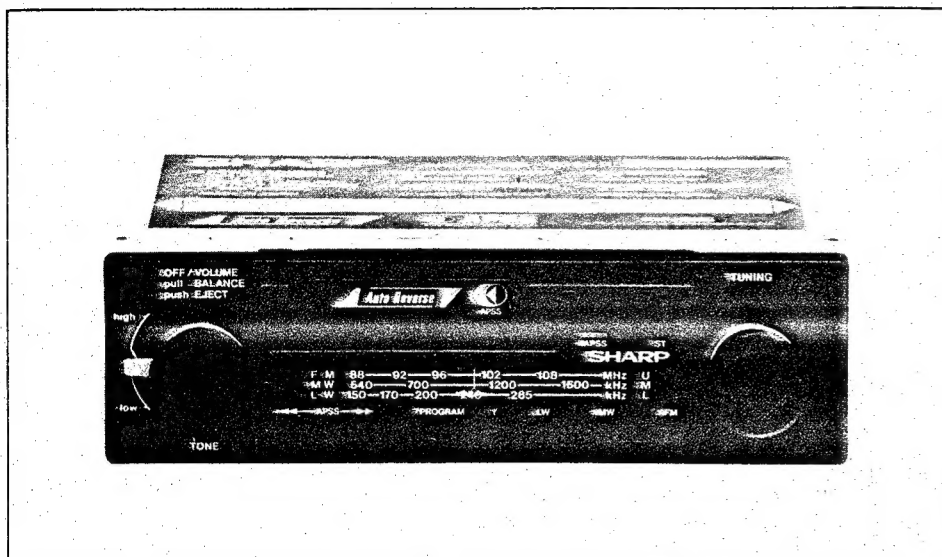


SHARP SERVICE MANUAL

RG-7050E

ATSMY80198CST



"In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used."



Solid State In-dash Type Cassette Car Stereo Player with LW/MW/FM/FM Stereo Radio and ANSS

MODEL RG-7050E

In the RG-7050E Service Manual the following are not described, and for their details please refer to the RG-5900H/E Service Manual already issued.

1. Circuitry Description
2. Power IC Replacement

INDEX TO CONTENTS

1. Specifications	2	9. Block Diagram of Integrated Circuit	15 ~ 17
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6. General Alignment Instruction	7 ~ 11	14. Cabinet Exploded View	25, 26
7. Front End	12	15. Transistors Type	27
8. Mechanical Adjustment	13, 14	16. Parts List	28 ~ 32

SHARP CORPORATION OSAKA, JAPAN

SPECIFICATIONS

GENERAL

Type: Solid State In-dash Type 4-Track 2-channel Auto Reverse Cassette Car Stereo Player with built-in LW/MW/FM/FM STEREO 3 band Radio and APSS.

Power source: 12V (for negative earthing car only)

Output impedance: 4 ohms/channel

Semiconductors: 16-transistor (1-FET), 18 diode (4-LED) and 6-IC (integrated circuit)

Output power: 8W + 8W (maximum power)
5W + 5W (at 10% distortion)

S/N: 54 dB

Dimensions: 178 (W) x 148 (D) x 44 (H) mm

Weight: 1.6 Kg

TAPE PLAYER SECTION

Playback system: 4-track, 2-channel Stereo

Using tape: Philips standard compact cassette tape

Tape speed: 4.75 cm/sec.

Wow and flutter: 0.35% (DIN 45 511)

Frequency response: 50Hz ~ 10 kHz/-6 dB

Fast forward time: 120 seconds (@ C-60 cassette tape)

Motor: D.C. motor with mechanical governor

RADIO SECTION

Frequency range: LW 150 ~ 285 kHz
MW 520 ~ 1,620 kHz
FM 87.6 ~ 108 MHz

IF: LW/MW 452 kHz
FM 10.7 MHz

Sensitivity: LW 400 μ V/20 dB
MW 40 μ V/20 dB
FM 2.5 μ V

Specifications are subject to change without prior notice.

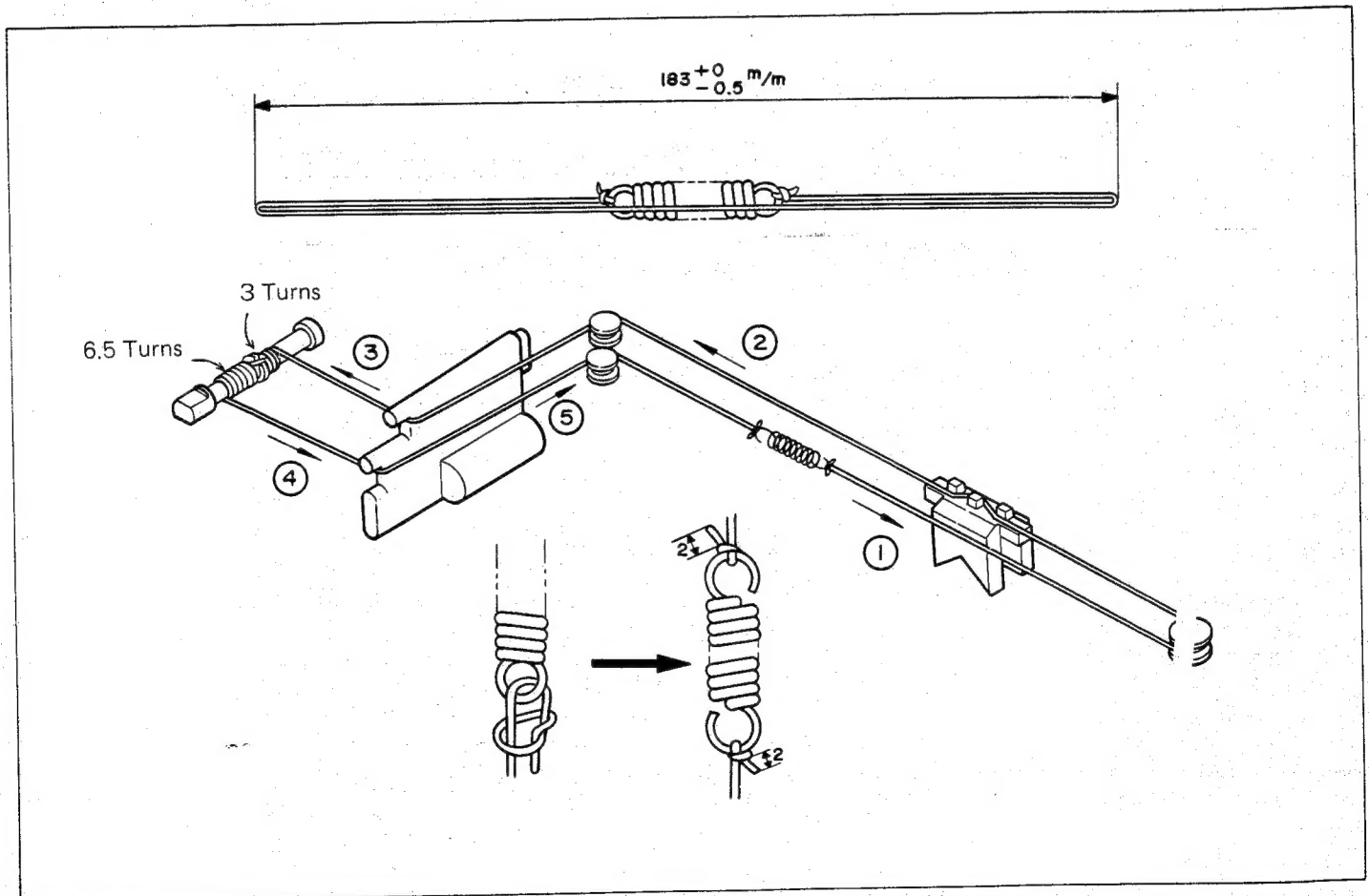


Figure 2 DIAL CORD STRINGING

PARTS LAYOUT

1. Tone Control Knob (JKNBK0204AFSA)
2. Power ON-OFF/Volume Control/Balance Control Knob/
Cassette Ejection Button (JKNBK0203AFSA)
3. APSS Knob (JKNBP0119AFSA)
4. Cassette Compartment (GFTAC1144AFSA)
5. APSS Indicator (VHPGL-9NG519F)
6. Tape Travel Direction Indicator (VHPGL-9NG6/-1)
7. FM Stereo Indicator (VHPGL-9PR9/-1)
8. Tuning Control Knob (JKNBK0203AFSA)
9. Fast-forward Winding Knob (JKNBP0119AFSA)
10. Program Selector Knob (JKNBP0119AFSA)
11. Antenna Trimmer (TC1) (RTO-A1056AFZZ)
12. Band Selector Knob (JKNBP0119AFSA)

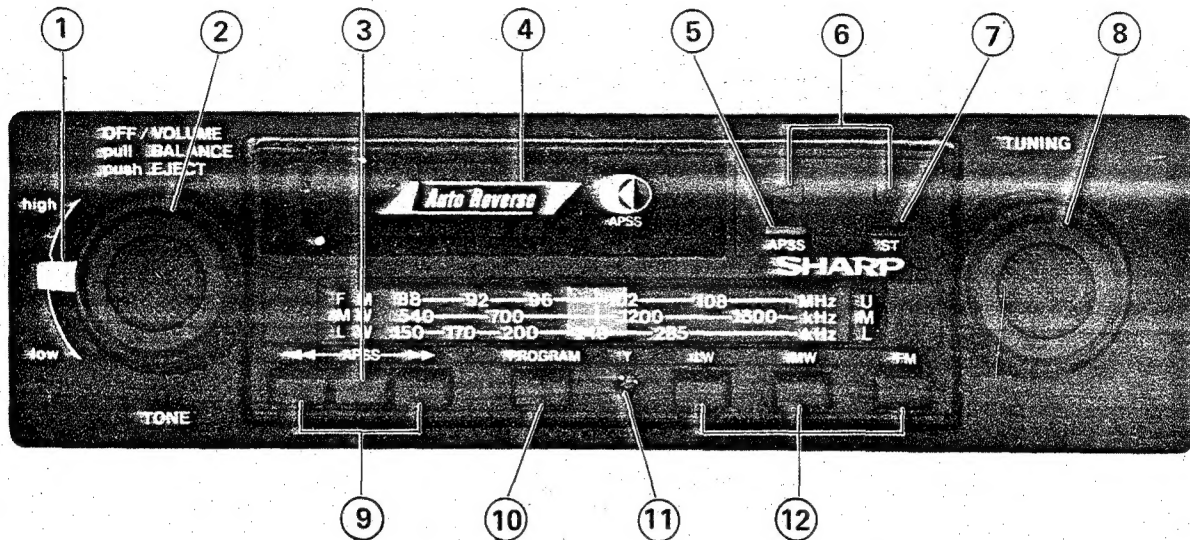


Figure 3-1 FRONT PARTS LAYOUT

13. Antenna Socket (QSOCZ0015AFZZ)
14. DC Input Terminal (QSOCD0271AFZZ)
15. Earth Terminal
16. Speaker Terminal (QSOCD0271AFZZ)

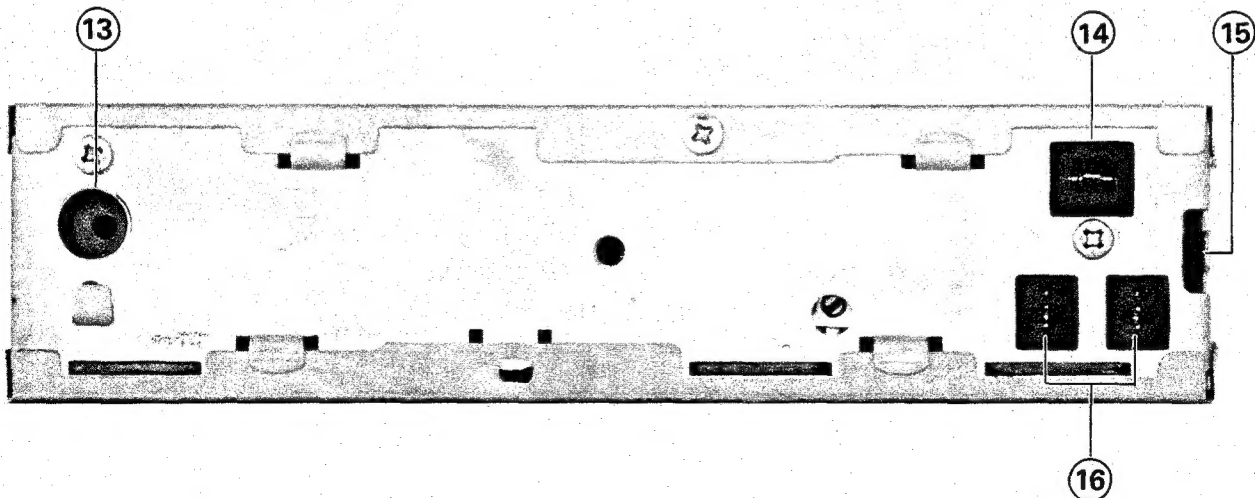


Figure 3-2 REAR PARTS LAYOUT

DISASSEMBLY

- ① Remove the two (2) screws from the cabinet.
- ② Remove the Top cabinet, then take it out. (See Fig. 4-1)
- ③ Remove the two (2) screws from the nose piece, then take it out. (See Fig. 4-2)
- ④ Remove the two (2) screws from the Mechanism chassis. (See Fig. 4-3)
- ⑤ Pull out the four (4) wiring connecting sockets provided on the printed wiring board.
- ⑥ Unsolder the two (2) leads from where the APSS PWB. (See Fig. 4-4)

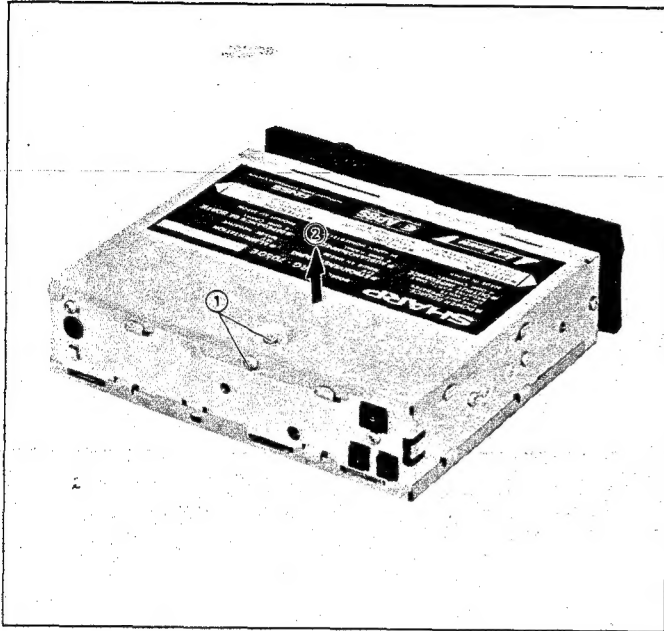


Figure 4-1

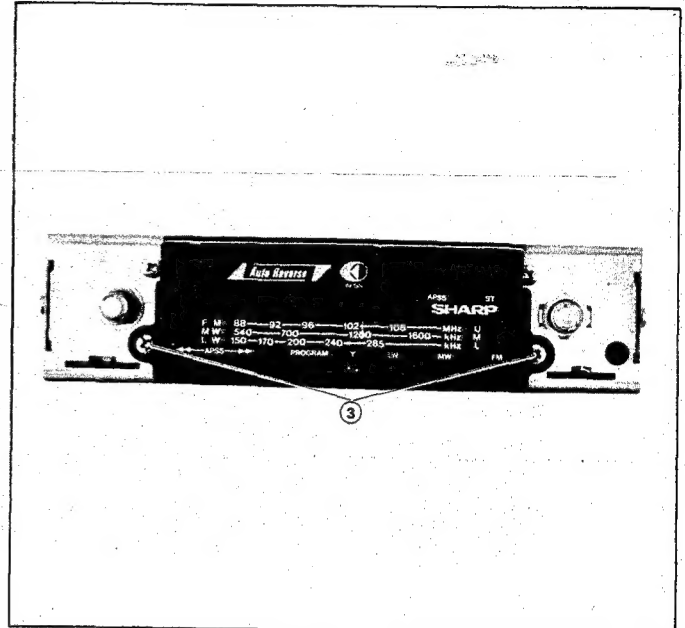


Figure 4-2

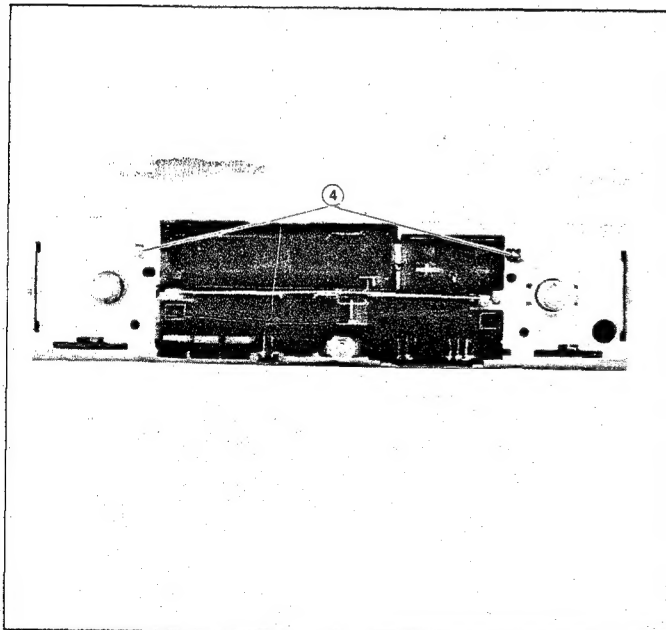


Figure 4-3

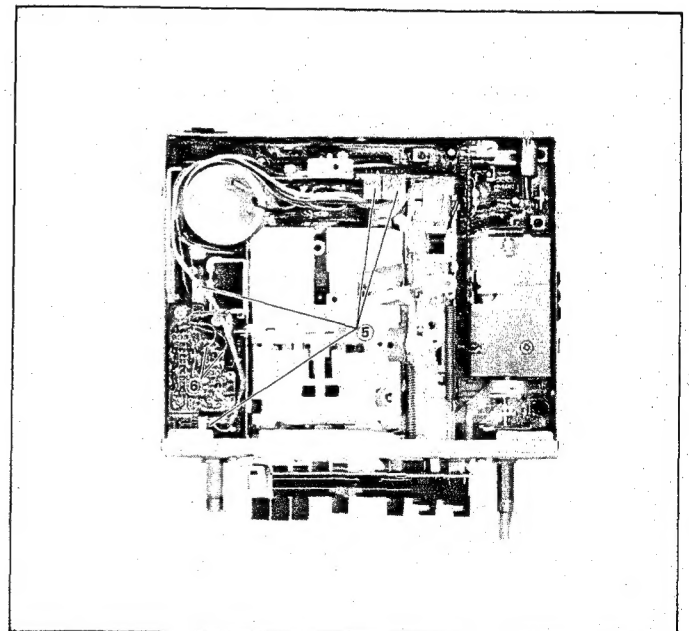


Figure 4-4

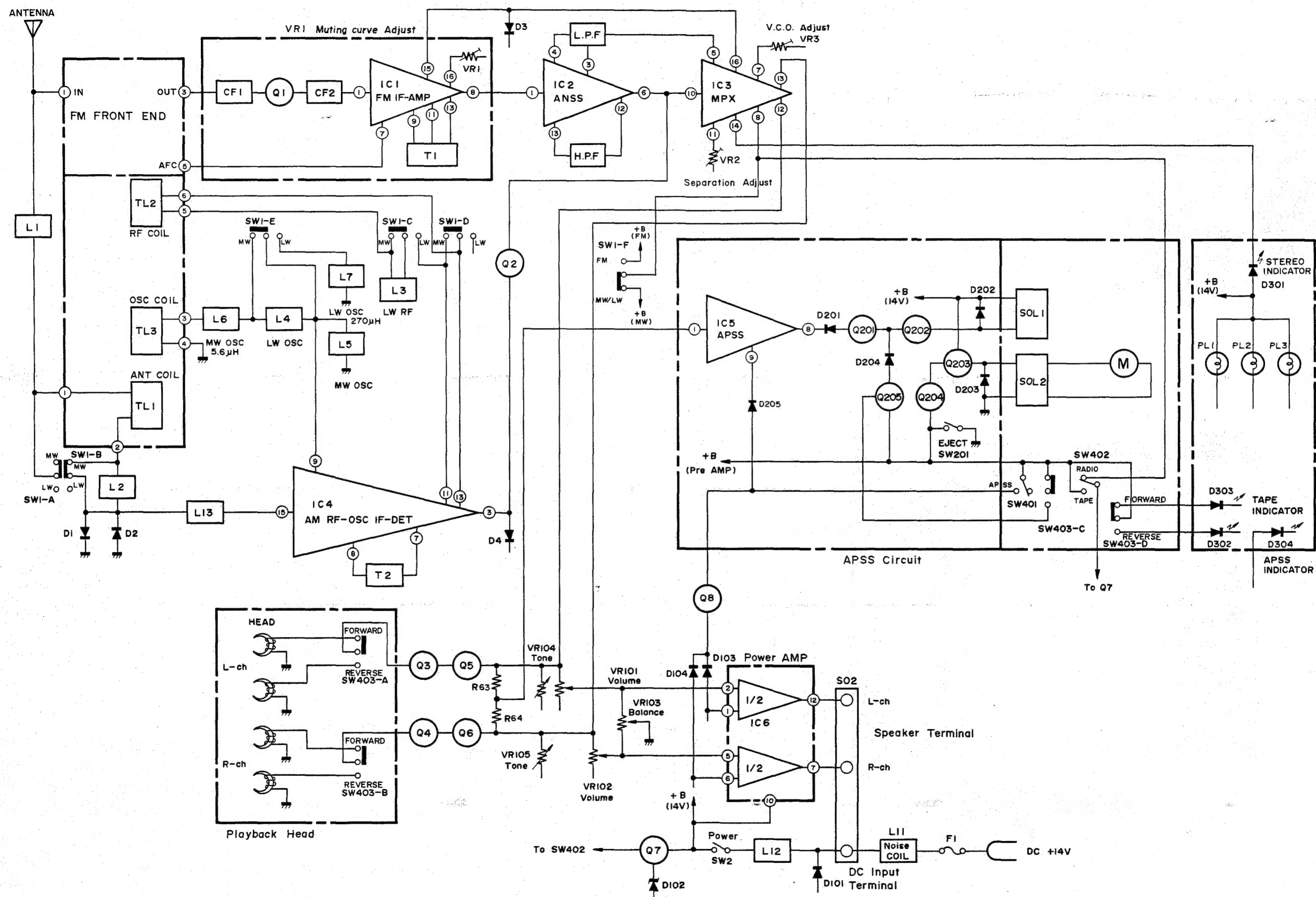


Figure 5 BLOCK DIAGRAM

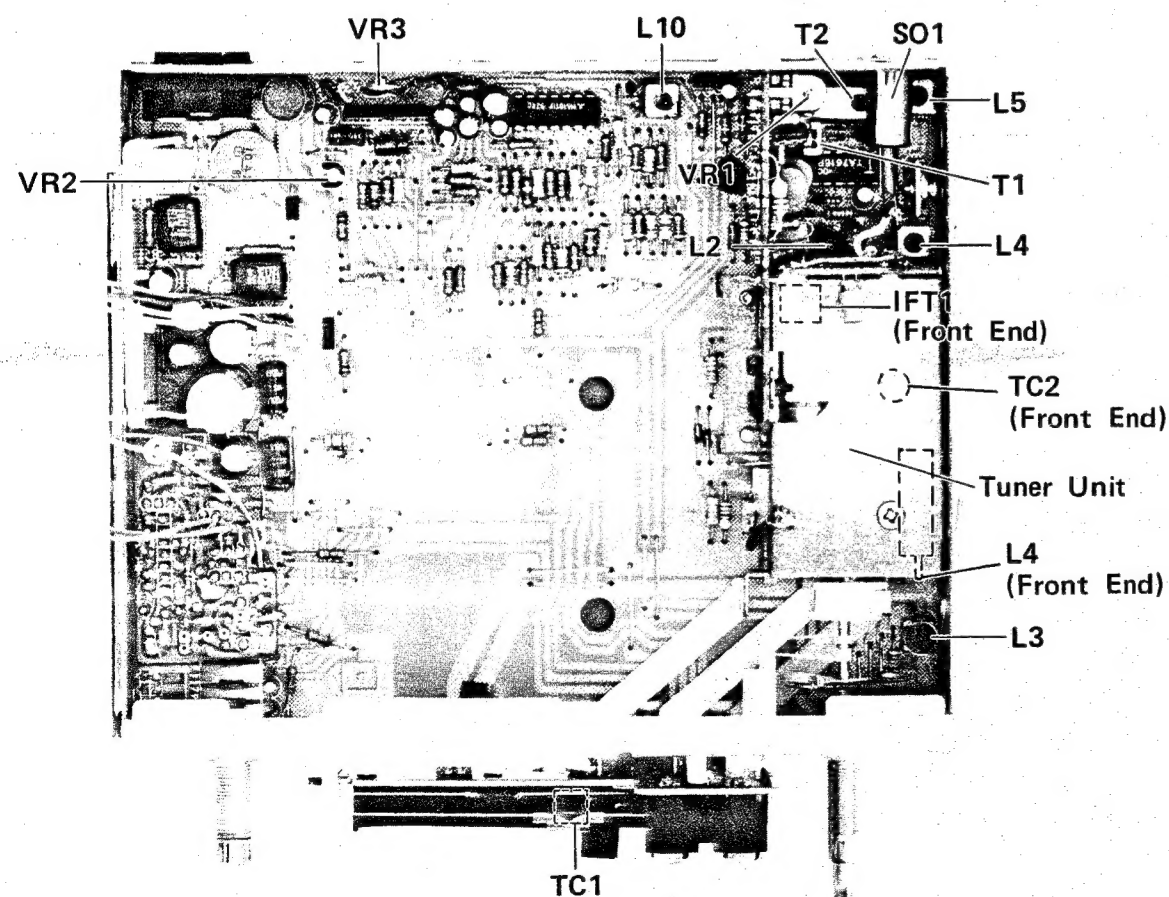
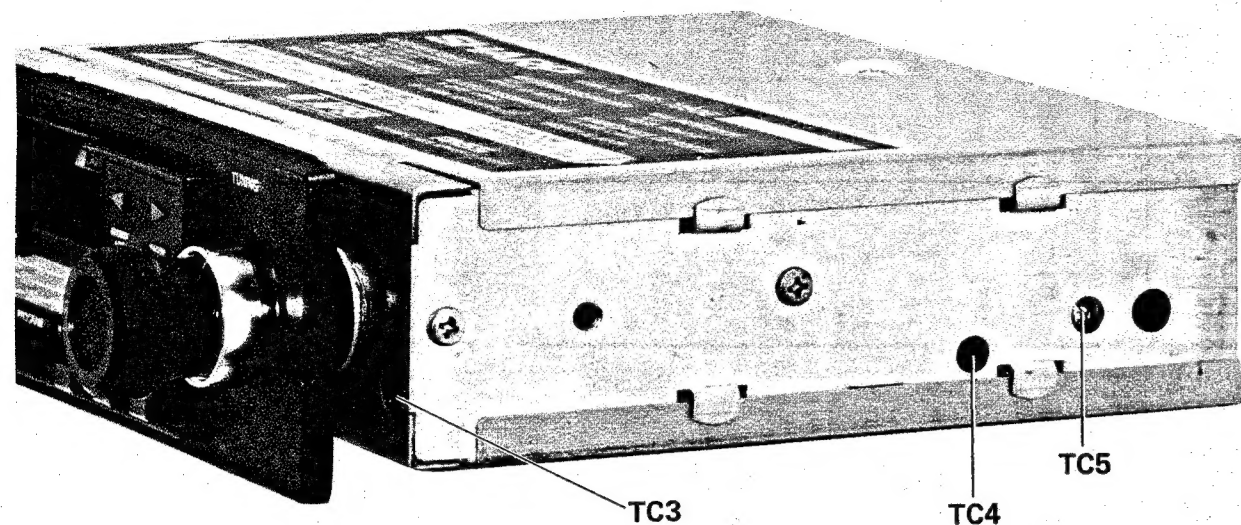


Figure 7 ALIGNMENT POINT

GENERAL ALIGNMENT INSTRUCTIONS

Should it become necessary at any time to check the alignment of this receiver, proceed as follows:

- 1) Connect an output meter across the speaker voice coil lugs.
- 2) Set the volume control at maximum.
- 3) Attenuate the signals from the generator enough to swing the most sensitive range of the output meter.
- 4) Use a non-metallic alignment tool.
- 5) Repeat adjustments to insure good results.

LW/MW ALIGNMENT CHART

Set the band selector switch at "MW" or "LW" position.

STEP	BAND	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
			CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	MW	IF	Connect signal generator through a dummy to the antenna socket (SO1) Ground lead to the receiver chassis. (Refer to Figure 8.)	Exactly 452kHz (400Hz, 30%, AM modulated)	High end of dial (minimum inductance)	Adjust for maximum output on speaker voice coil lugs.	T2
2	MW	IF	Repeat until no further improvement can be made.				
3	MW	Band Coverage	Same as step 1.	Exactly 510kHz (400Hz, 30%, AM modulated)	Low end of dial (maximum inductance)	Same as step 1.	Adjust the MW oscillator coil L5.
			Same as step 1.	Exactly 1650kHz (400Hz, 30%, AM modulated)	High end of dial (minimum inductance)	Same as step 1.	Adjust the MW oscillator trimmer TC5.
4	MW	Tracking	Same as step 1.	Exactly 1400kHz (400Hz, 30% AM modulated)	1400kHz.	Same as step 1.	Adjust the MW antenna trimmer TC1, and then adjust the MW RF trimmer TC3.
5	MW		Repeat steps 3 and 4 until no further improvement can be made.				
6	LW	Band Coverage	Same as step 1.	Exactly 145kHz (400Hz, 30%, AM modulated)	Low end of dial (maximum inductance)	Same as step 1.	Adjust the LW oscillator trimmer TC4
			Same as step 1.	Exactly 310kHz (400Hz, 30%, AM modulated)	High end of dial (minimum inductance)	Same as step 1.	Adjust the LW oscillator coil L4.
7	LW	Tracking	Same as step 1.	Exactly 260kHz (400Hz, 30%, AM modulated)	260kHz.	Same as step 1.	Adjust the LW antenna coil L2, and then adjust the LW RF coil L3.
8	LW		Repeat steps 6 and 7 until no further improvement can be made.				

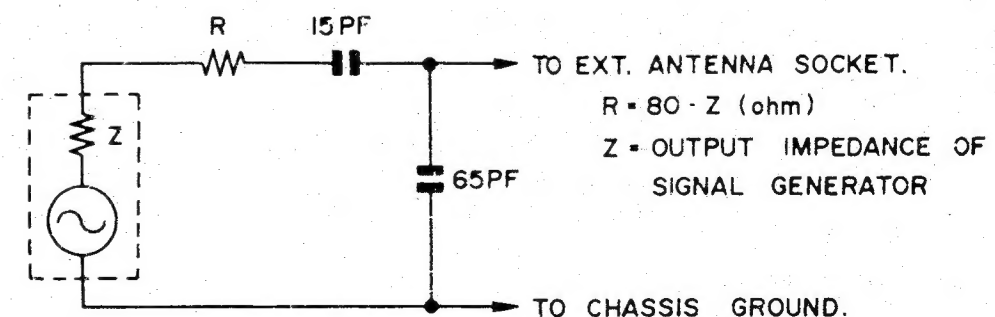


Figure 8 AM DUMMY

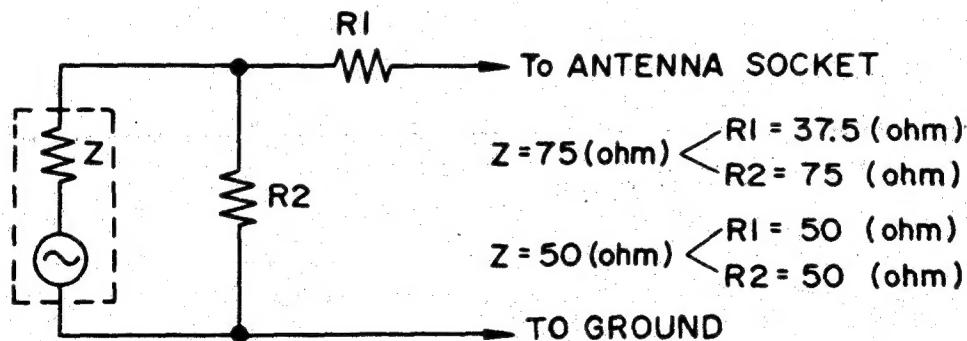
FM ALIGNMENT CHART

Set the band selector switch at "FM" position.

STEP	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	IF (NOTE B)	Connect signal generator through a .022MFD capacitor to antenna socket (SO1). Connect generator ground lead to the receiver chassis.	Exactly 10.7MHz (400Hz, 30%, FM modulated)	Low end of dial. (maximum inductance)	Connect VTVM between test point TP1 and chassis ground.	Tune IFT 1 (Front End)
2	Quar- drature Detector	Same as step 1.	Exactly 10.7MHz (unmodulated)	Same as step 1.	See NOTE A.	See NOTE A.
3	Repeat steps 1 until no further improvement can be made.					
4	Band Coverage	Connect signal generator through a dummy including output impedance of signal generator to the car antenna socket (SO1). Ground lead of generator connected to the receiver chassis. (Refer to Figure 9.)	Exactly 87.2 MHz (400Hz, 30%, FM modulated)	Same as step 1.	Adjust for maximum output at speaker voice coil.	Oscillator trimmer TC2 (Included by Front end)

NOTE A

- 1) Connect VTVM (10 volt range D.C. Scale between test point TP2 and Pin ⑬ of IC-1.
- 2) Adjust T1 for 0 volt on VTVM.



Z=OUTPUT IMPEDANCE OF SIGNAL GENERATOR

Figure 9 FM DUMMY

NOTE B

Five kinds of ceramic filter (CF1, CF2) are available for this set. The difference of central frequency from each other can be known by the color indication. The table below shows such a difference of IF and S curve, depending upon the color indications of the ceramic filter (CF1, CF2).

Central Frequency	D	Black	10.64MHz \pm 30kHz
	B	Blue	10.67MHz \pm 30kHz
	A	Red	10.70MHz \pm 30kHz
	C	Orange	10.73MHz \pm 30kHz
	E	White	10.76MHz \pm 30kHz

For their employment, it is required to use two ceramic filters of same type.

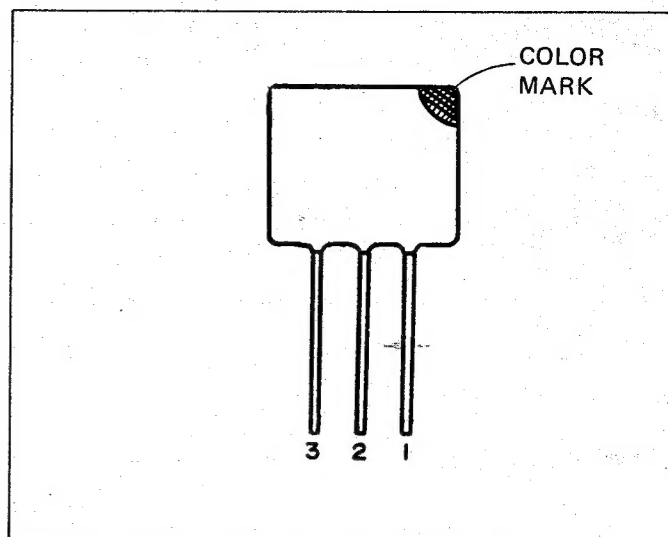


Figure 10-1

FM STEREO AND SEPARATION ALIGNMENT

Set the band selector switch at "FM" position.

STEP	SIGNAL GENERATOR		RECEIVER		METER CONNECTION	ADJUSTMENT
	CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS		
1			98MHz	Adjust so that the frequency becomes 19.0kHz. (In case an oscilloscope is connected to the test point TP10, adjust the signals to be 19kHz by using Lissajou's waveform).	Connect the frequency counter (or oscilloscope) through a 100K ohm resistor to TP10 (3 pin of IC3).	VR3
2	Refer to Figure 10-2.	FM Signal generator 98MHz (External modulator) FM Stereo modulator Pilot: 9% (6.75kHz dev.) Signal: 400Hz, 91% (68.25kHz dev.)	Same as step 1.	The VR2 should be adjusted so that the output level L (or R) of the speaker might come to be lowest by generating the output signal of the FM stereo modulator on Right side (or Left side) only.	Same as step 1.	VR2
3	Repeat steps 1 and 2 until no further improvement can be made.					

If without the frequency counter, proceed with the alignment as follows. While receiving an FM stereo signal, turn the VR3 until the P.L.L. will be locked (when it is locked, the stereo indicator will be lit). Then, reversely turn the VR3 halfway and fix it.

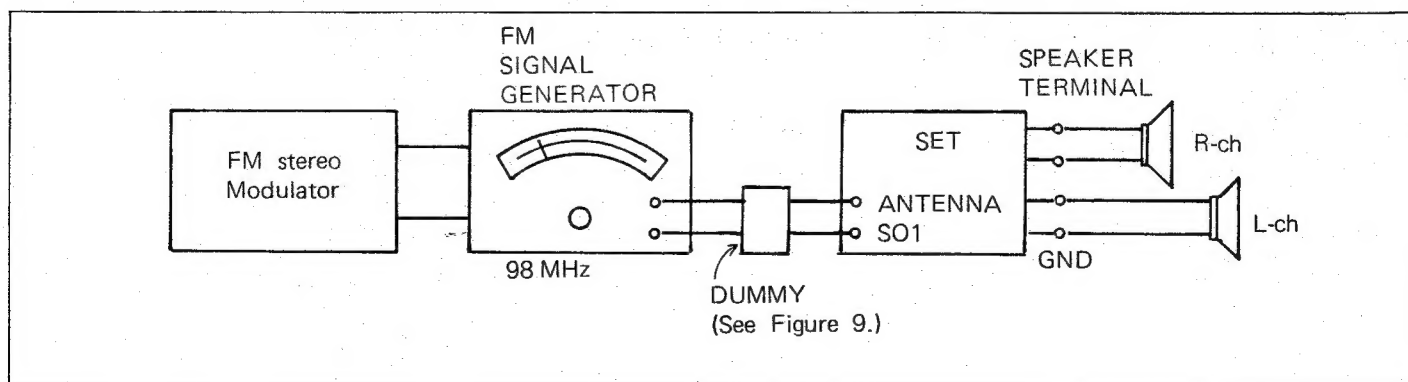


Figure 10-2

ANSS ADJUSTMENT

1. Set the band selector switch at "FM" position.
2. Apply a 19 kHz signal of 30 mV to (TP6).
3. Connect a VTVM and/or an oscilloscope to (TP9).
4. Adjust L10 for minimum output at (TP9).
5. Then, apply a 1 kHz signal of 100 mV to (TP6).
6. Make sure that there is no output at pin 6, applying a 100 kHz signal of 50 mV further to pin 13.
7. Next, make sure that a 1 kHz signal of 100 mV appears at (TP6), connecting (TP-8) to earth.

THE INSTRUCTION OF FREQUENCY ADJUSTMENT

In order to comply with Pfg. Nr. 358/1970, please fix the low end of dial frequency (87.5MHz) and the high end of dial frequency (107.9 MHz) on FM band, by adjusting Oscillation trimmer oscillation coil (L4), (Included by front-end) respectively, as illustrated in Figure 7.

MUTING CURVE ADJUSTMENT (Fig. 11-1 and 11-2)

1. Place the set in FM mode.
2. Set FM signal generator to produce a signal of 98 MHz (modulated at 22.5 kHz), 54 dB, and connect this signal to the antenna terminal of the set.
3. Tune in the signal of 98 MHz, and adjust the Volume control so that the speaker output becomes 1.4 V on VTVM (across a resistor of 4 ohms). (Balance control: Mechanical center).
4. Set FM signal generator to produce a signal of 98 MHz (modulated at 22.5 kHz), 20 dB, and tune in this signal.
5. Adjust the semi-variable resistor VR1 so that the speaker output becomes 1 V on VTVM (across a resistor of 4 ohms).

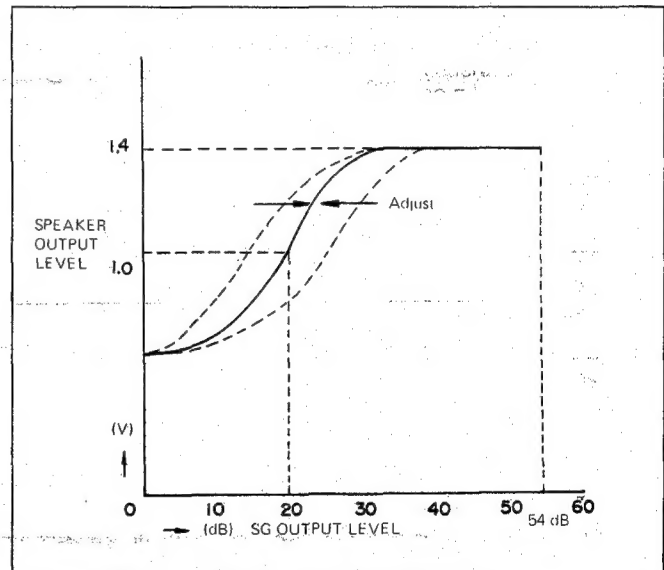


Figure 11-1 (SG Output vs Speaker Output)

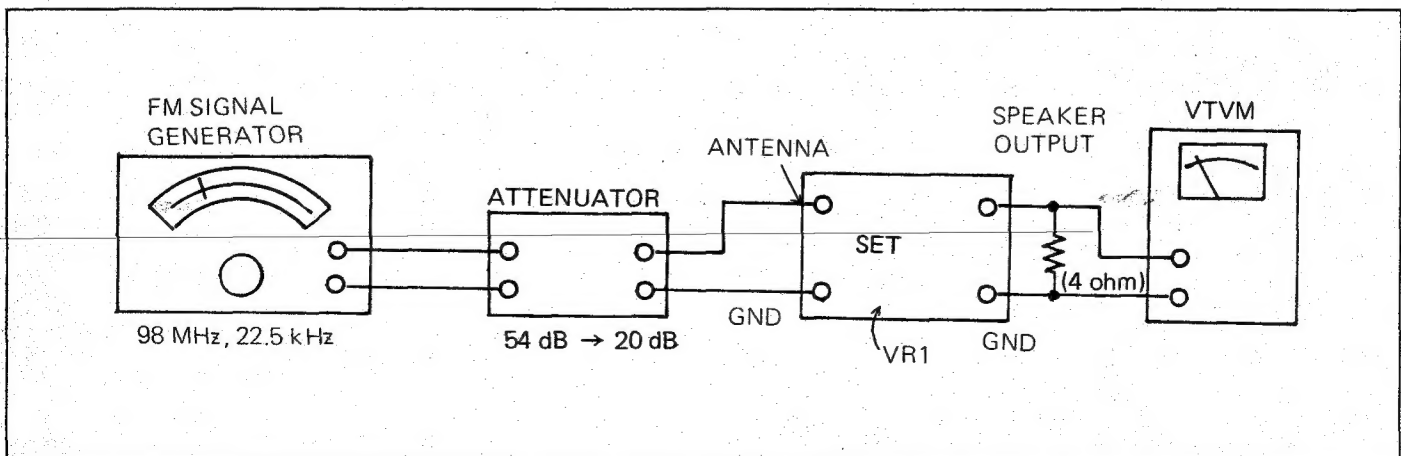
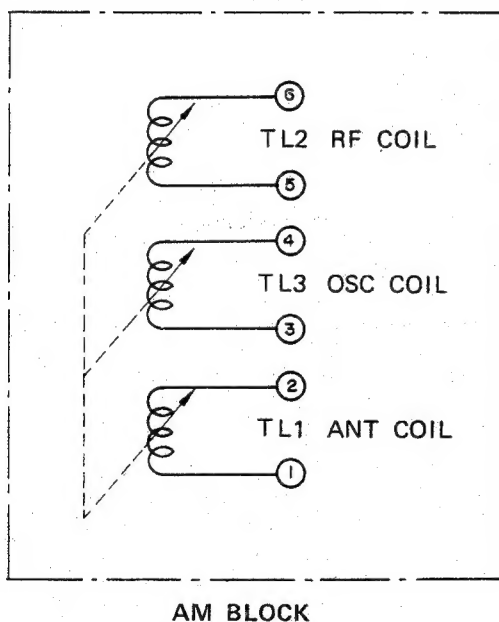
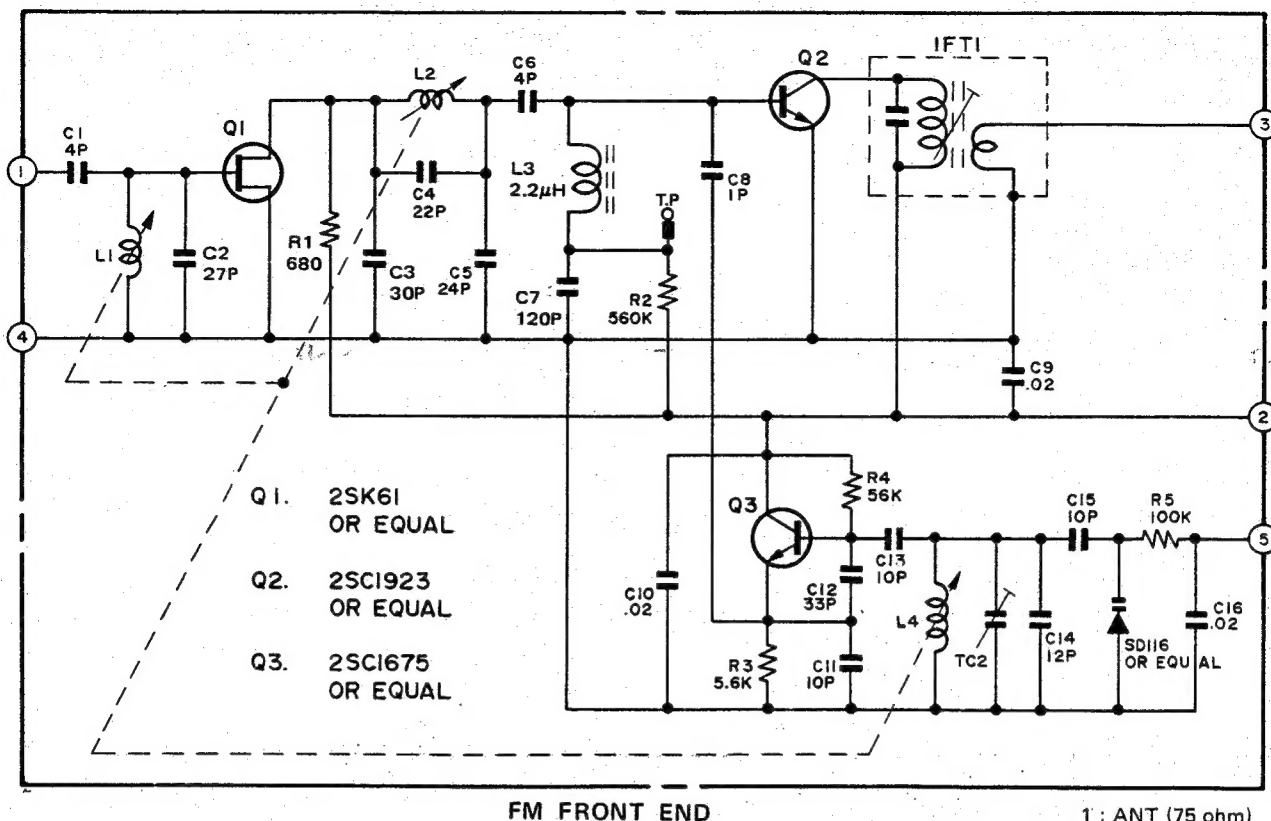


Figure 11-2



Note:

The FM Front End and AM Block tuner unit shown above is supplied as an assembly unit and to supply its constituent parts separately is not possible.

PINCH ROLLER PRESSURE ADJUSTMENT (Figure 13-1)

1. With power supply turned on, push the point (A) with a tension gauge to make the pinch roller apart from the capstan shaft. Then, gradually release the tension gauge and read its value when the pinch roller starts to rotate.
2. It is normal that the tension gauge reads 250 ~ 300g. If the above value is not satisfied, change the setting position of Pinch Lever Spring.

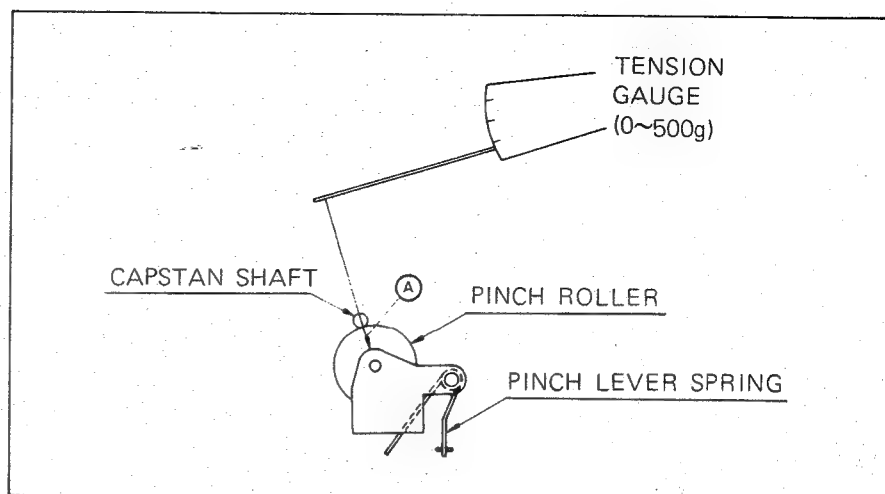


Figure 13-1

TORQUE CHECK AT PLAY, FAST FORWARD AND REWIND MODES (Fig. 13-2 and 13-3 and 13-4)

1. Put a torque meter cassette in the cassette compartment of the set, and see that the measured torque in each mode is normal as follows:

Mode	Torque meter cassette	Measured torque
Playback	TW-2111	35 ~ 55 gram.cm
Fast Forward	TW-2231	80 ~ 110 gram.cm
Rewind	TW-2231	80 ~ 110 gram.cm

Figure 13-2

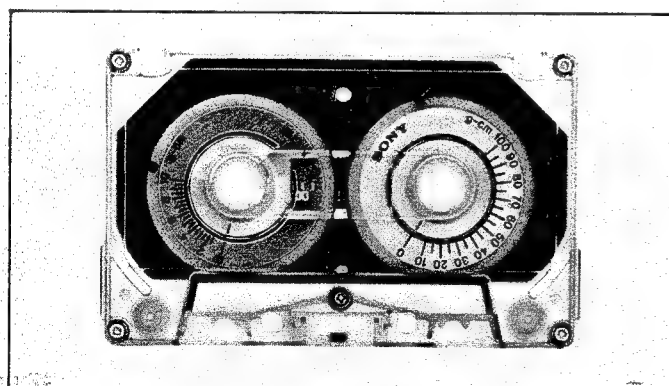


Figure 13-3 (TW-2111)

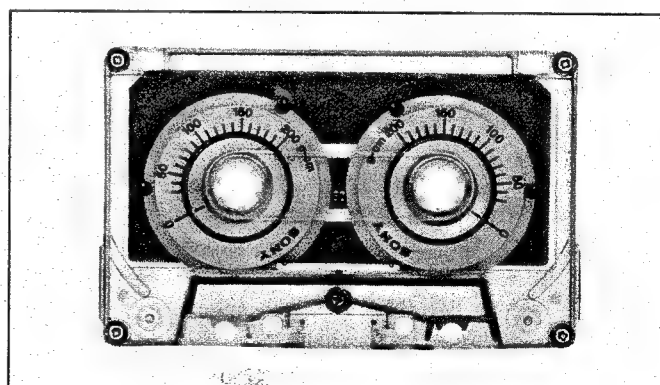


Figure 13-4 (TW-2231)

FLYWHEEL THRUST CLEARANCE ADJUSTMENT

Slowly tighten the screw for flywheel thrust clearance until the thrust clearance becomes 0 (zero) and loosen the screw by 1/4 turn from this point. Since screw's pitch is 0.5 mm, thrust clearance of 0.1 ~ 0.2 mm is produced.

Caution: After completion of the adjustment, be sure to lock the adjusting screw in place, using glyptal or glue.

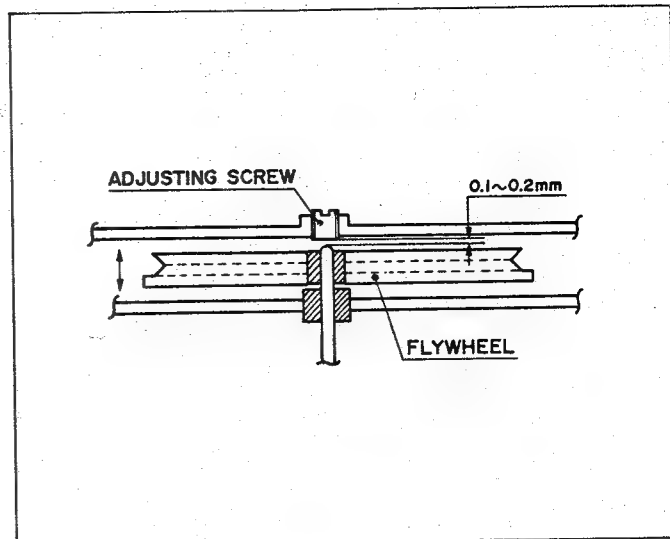


Figure 14-1

Checking of Tape Speed

1. Connect a frequency counter to the speaker terminal.
2. Using a test tape (MTT-111, 3 kHz), play it for 10 seconds at its beginning and end parts.
3. Check, then, that the playback frequency indicated by the counter is 2919 to 3081 Hz at maximum. If not, renew the motor.

Note:

The supply voltage is set at DC14V, and the unit must be kept horizontal during the measurement.

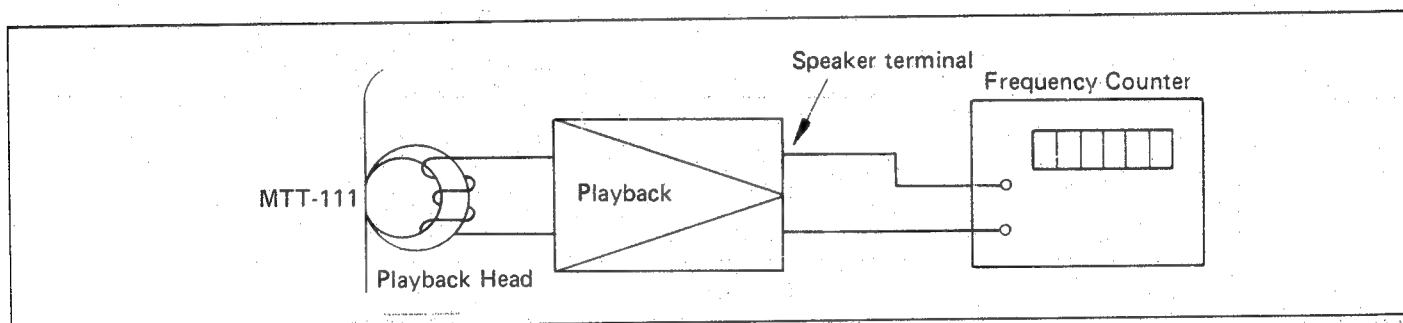


Figure 14-2

HEAD AZIMUTH ADJUSTMENT

Standard Test Tape to be applied: Philips HU-71512 or the equivalent (TEAC MTT-113, VICTOR VTT-601).

- (1) Set the Player Unit on.
- (2) Turn the azimuth adjusting screw until the output of the test tape (6.3kHz) is boosted up to the maximum.

Caution: After completion of the adjustment, be sure to lock the adjusting screw in place, using glyptal or glue.

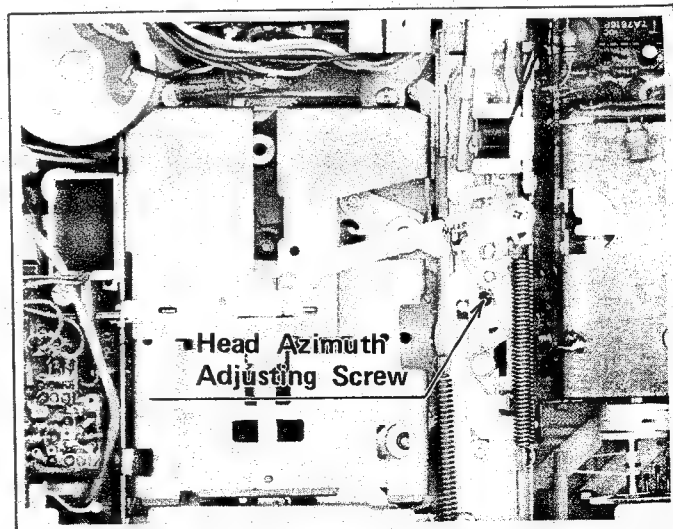


Figure 14-3

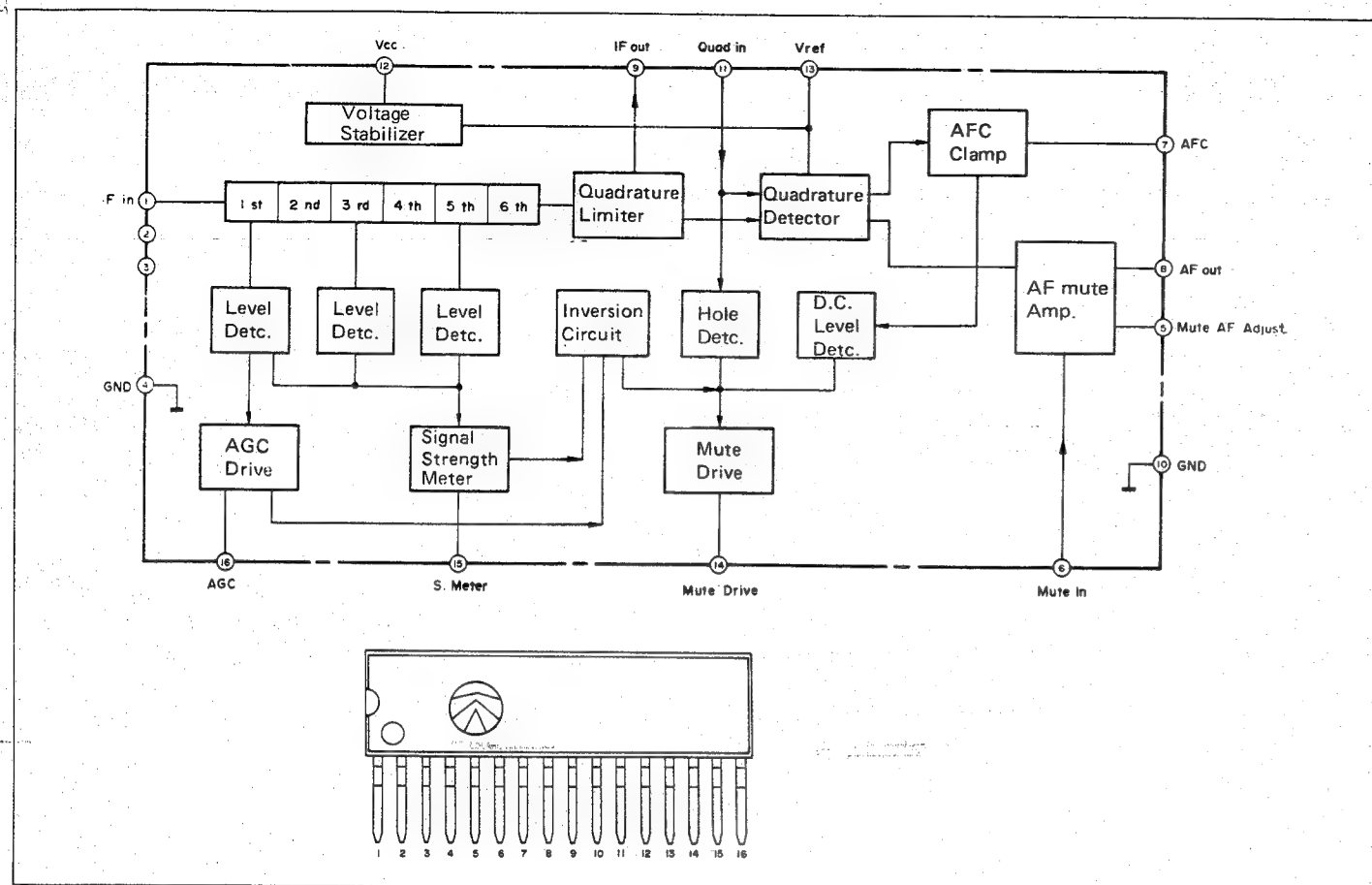


Figure 15-1 BLOCK DIAGRAM OF INTEGRATED CIRCUITS (IC1)

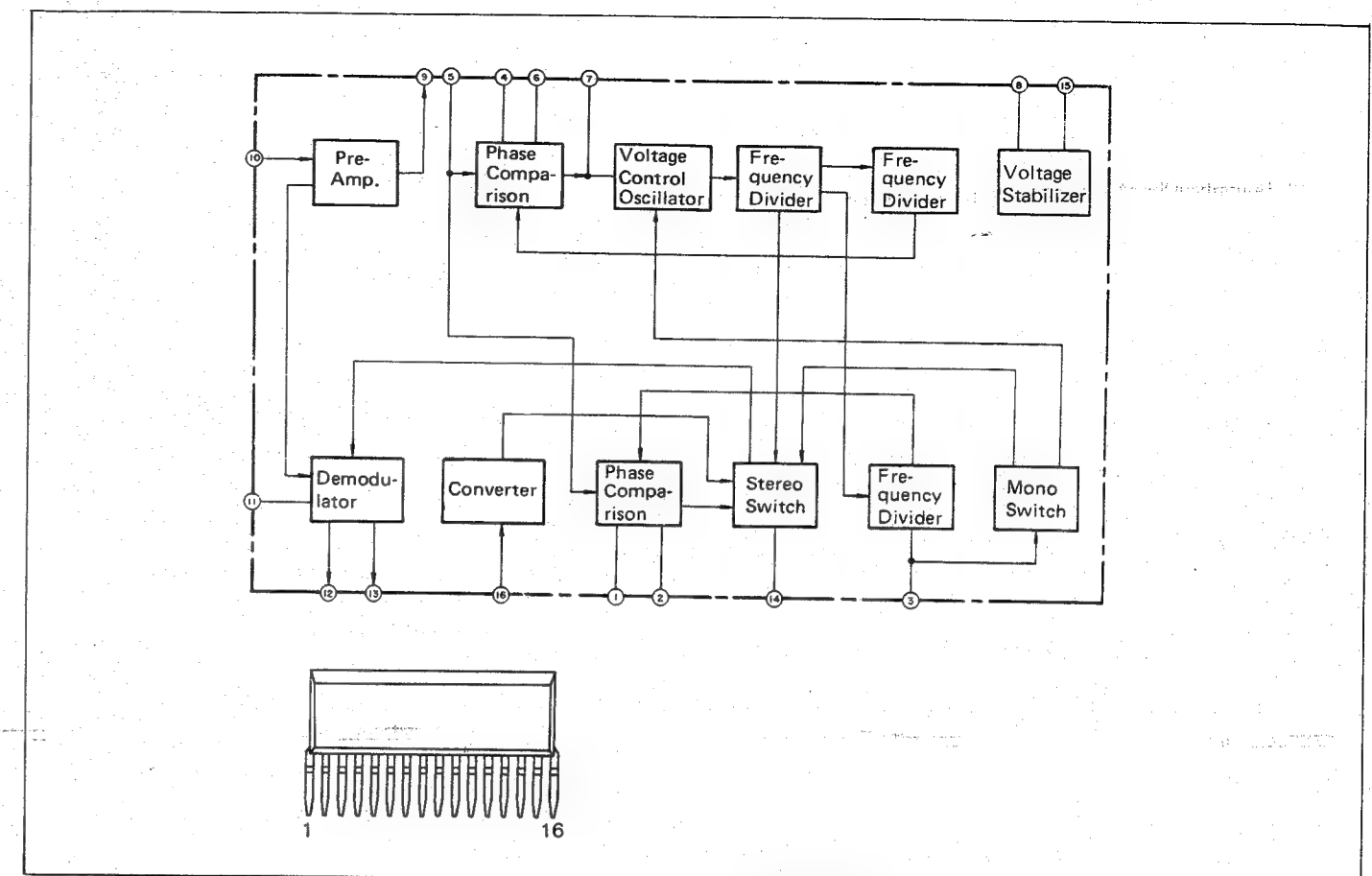


Figure 16-1 BLOCK DIAGRAM OF INTEGRATED CIRCUITS (IC3)

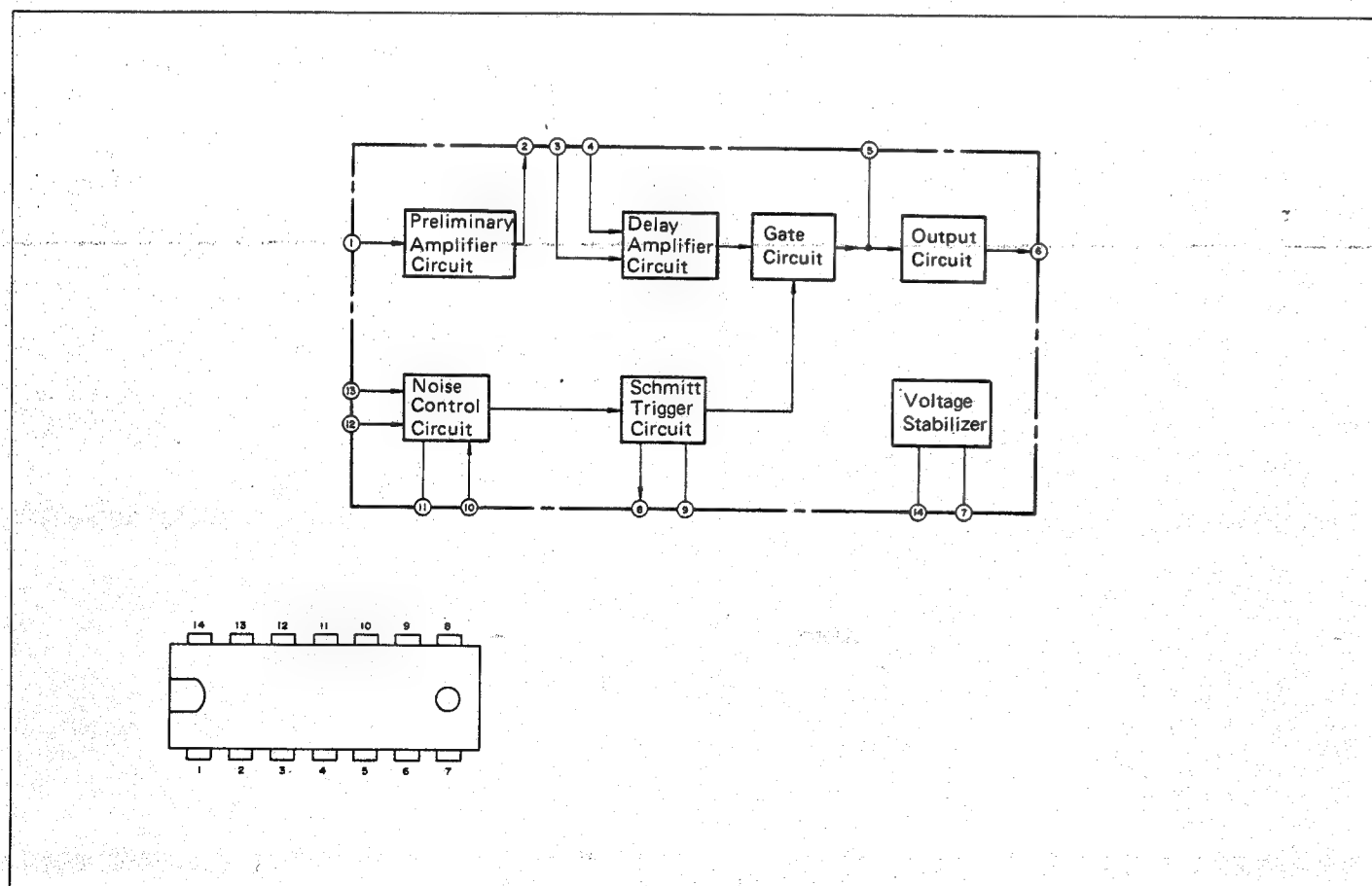


Figure 15-2 BLOCK DIAGRAM OF INTEGRATED CIRCUITS (IC2)

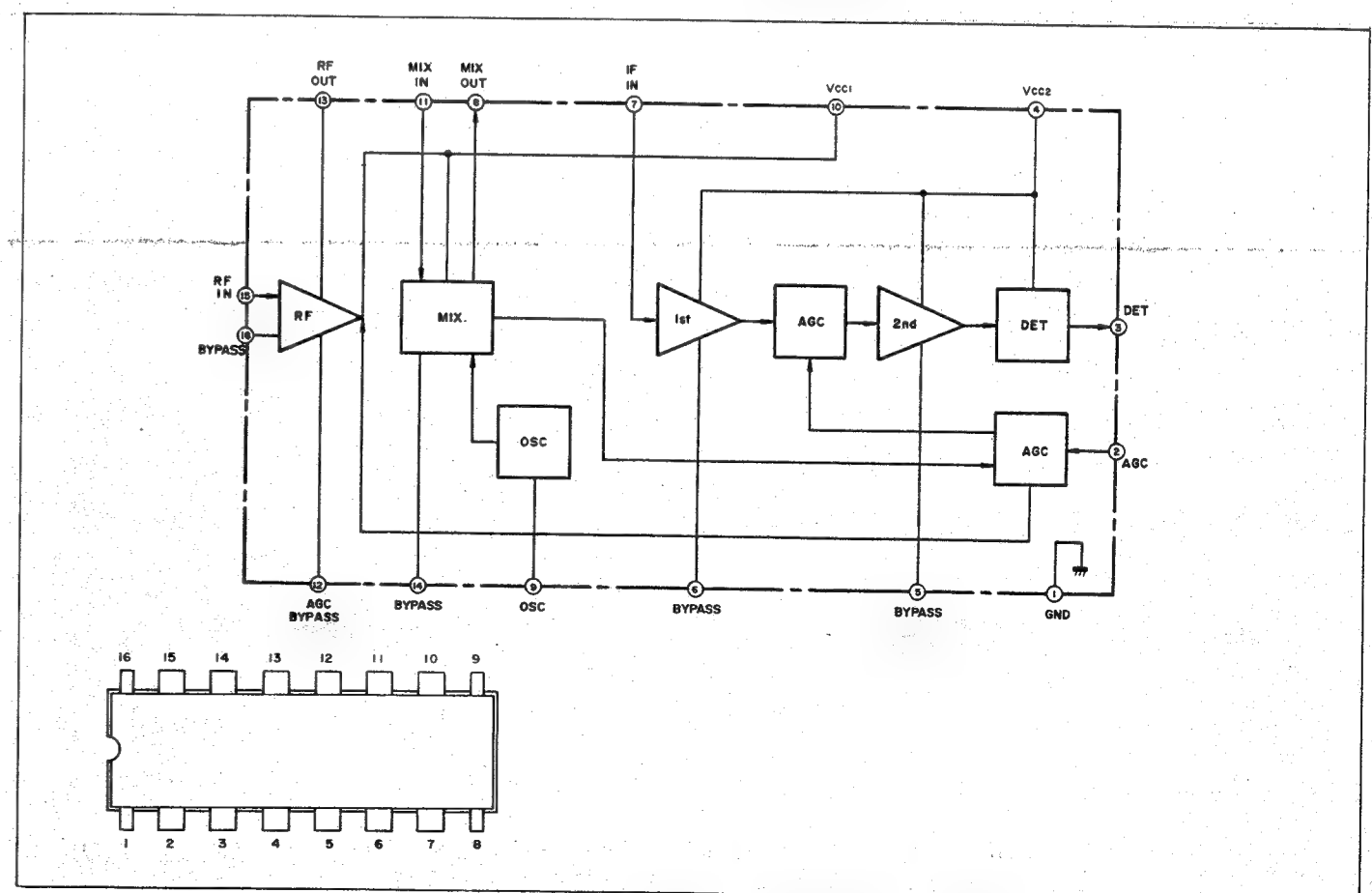


Figure 16-2 BLOCK DIAGRAM OF INTEGRATED CIRCUITS (IC4)

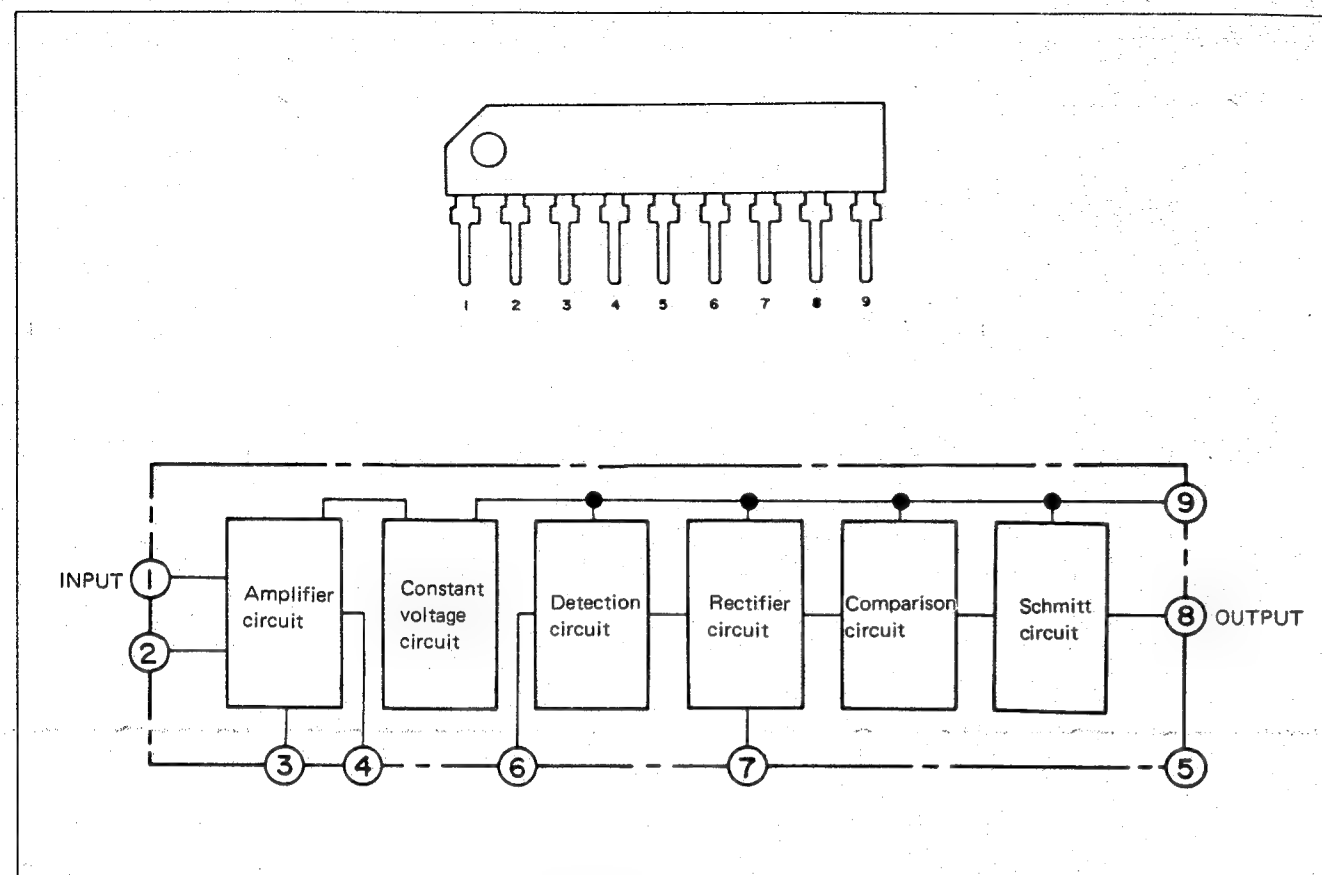


Figure 17-1 BLOCK DIAGRAM OF INTEGRATED CIRCUITS (IC5)

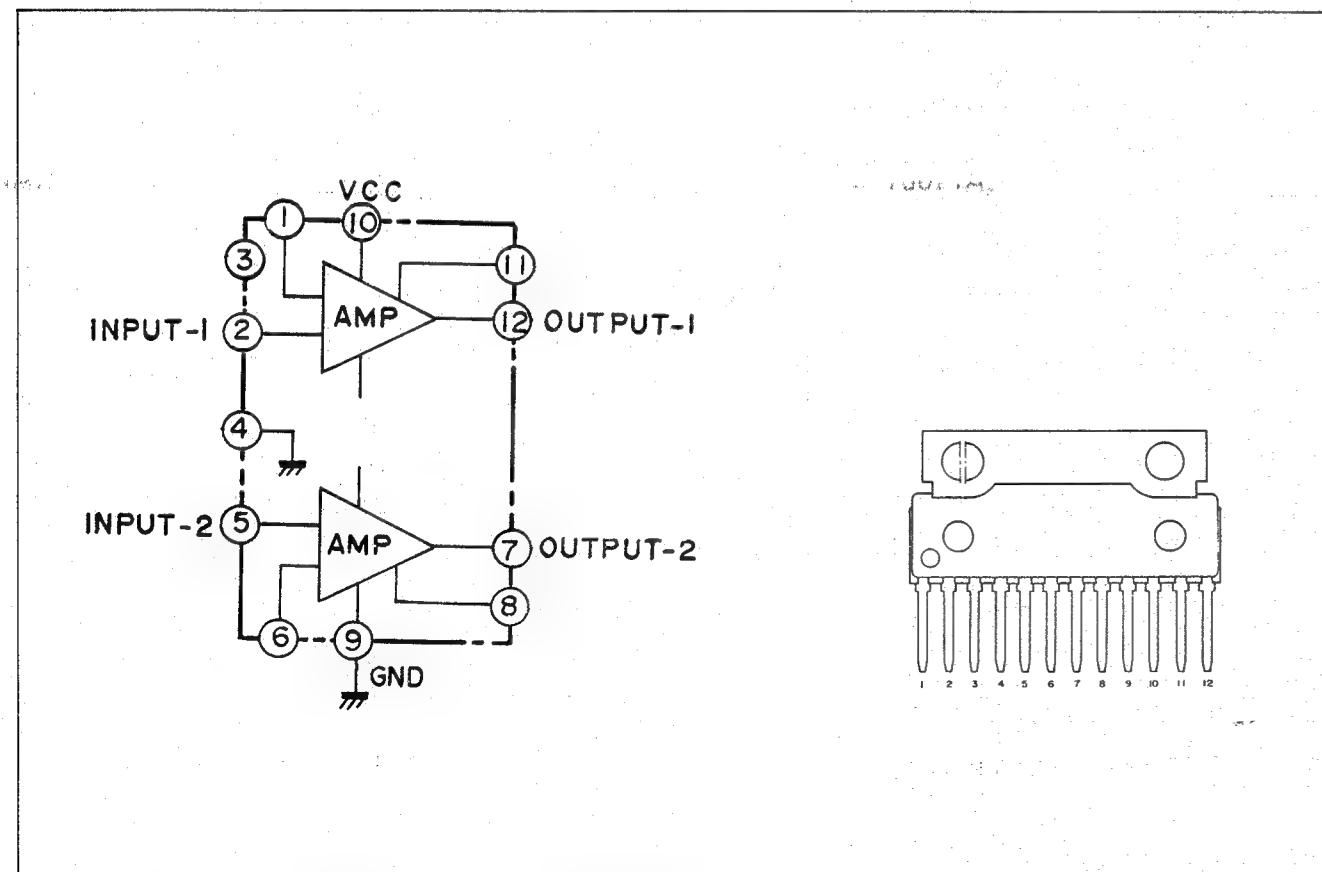


Figure 17-2 BLOCK DIAGRAM OF INTEGRATED CIRCUITS (IC6)

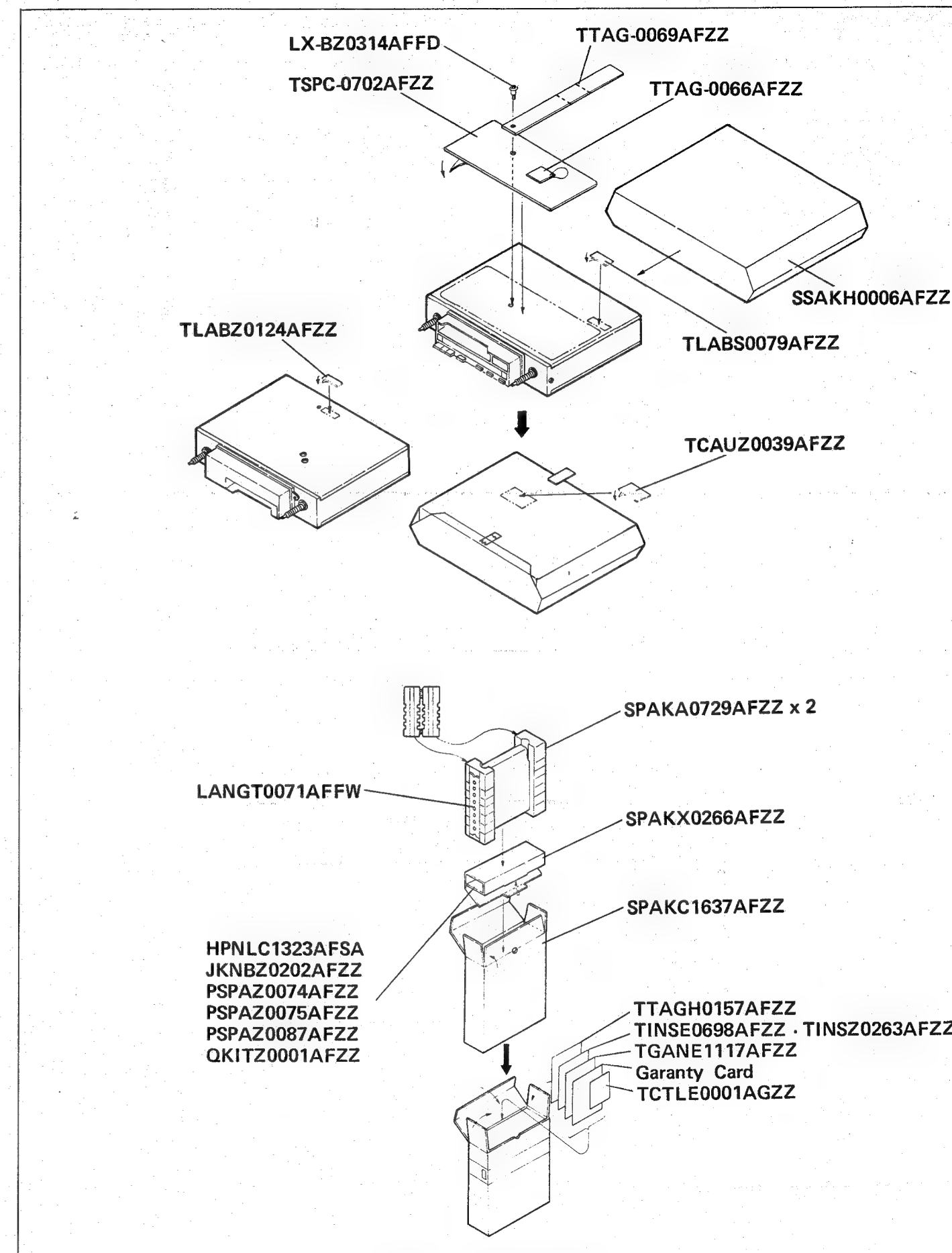
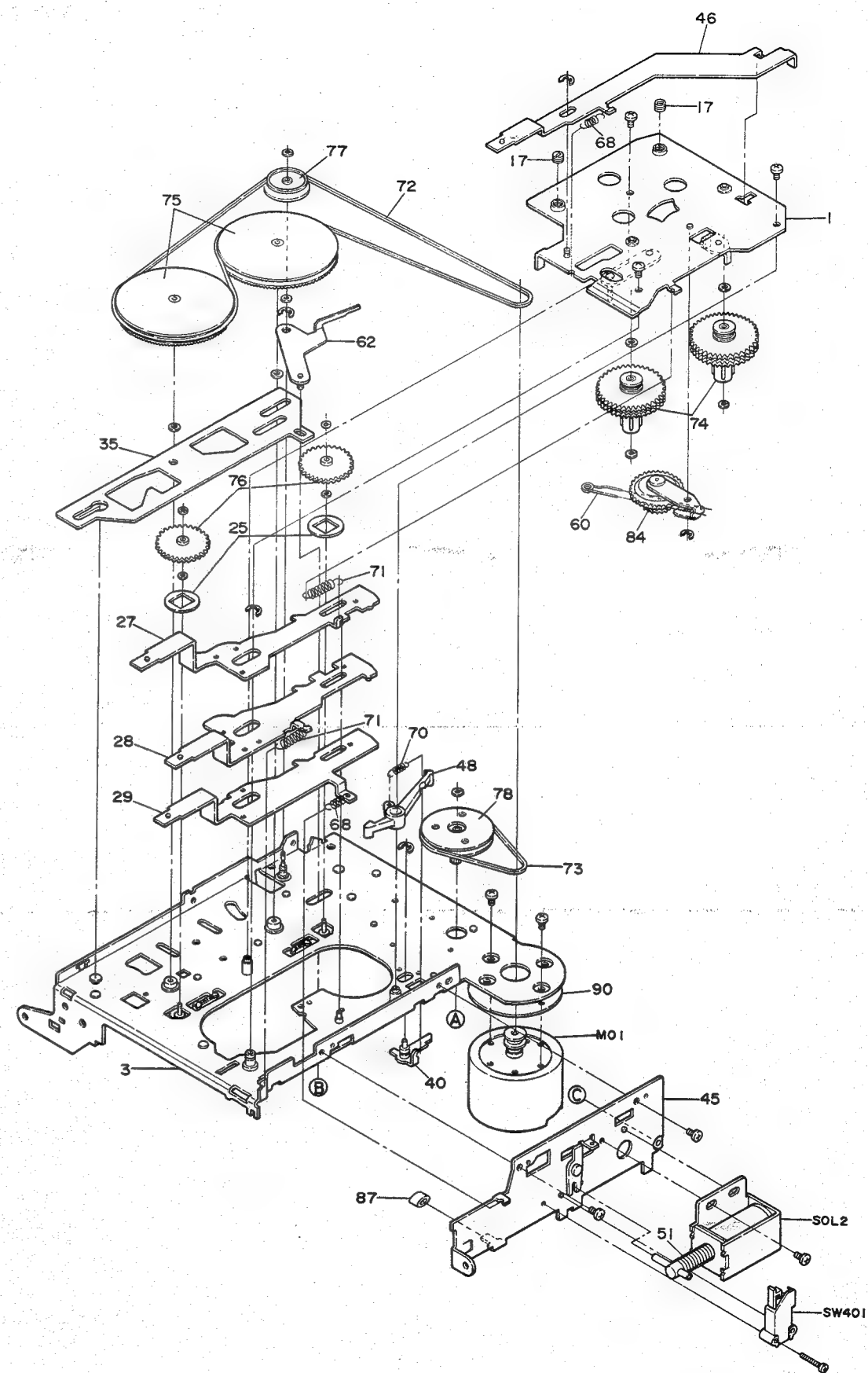
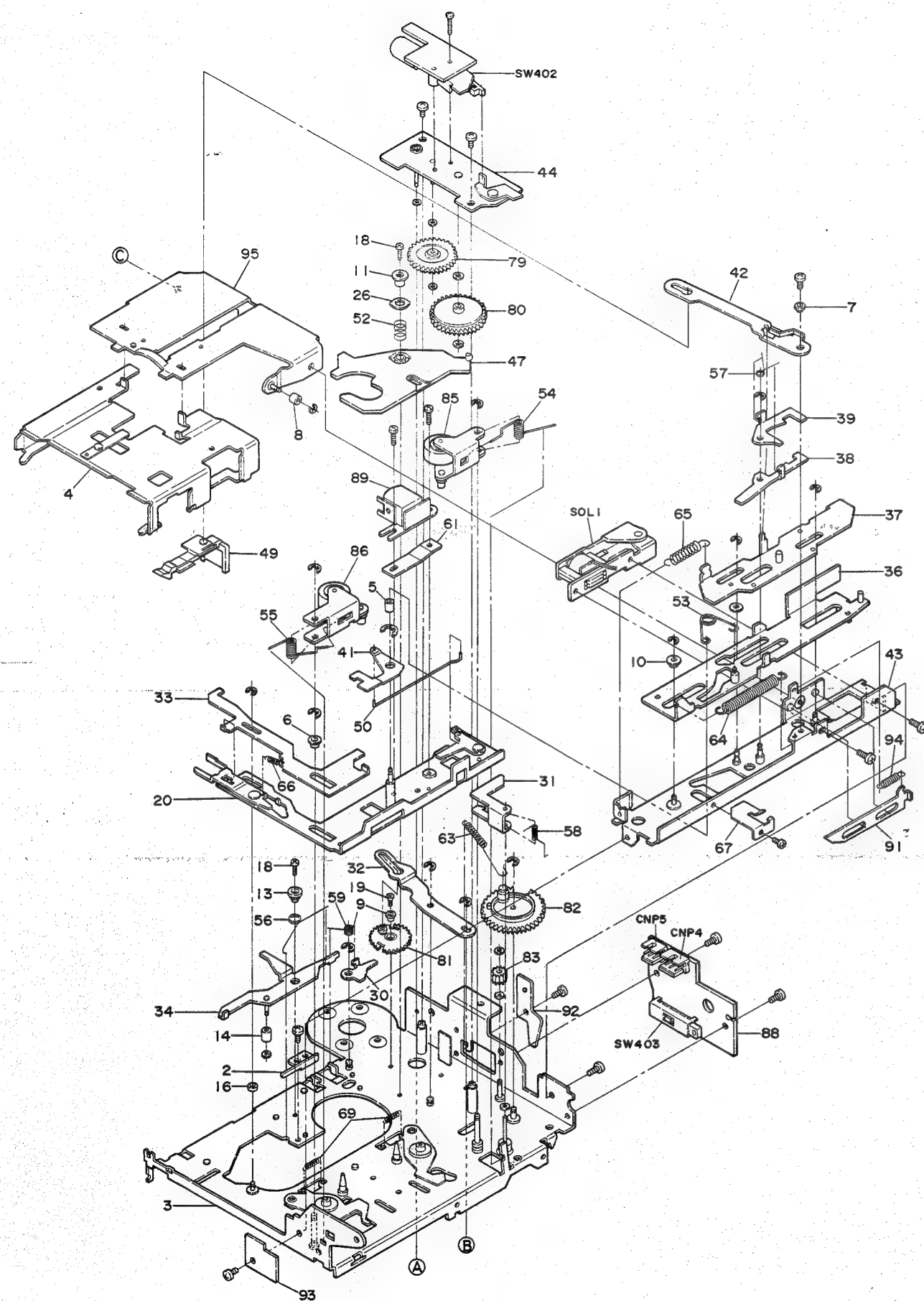


Figure 18 PACKING METHOD



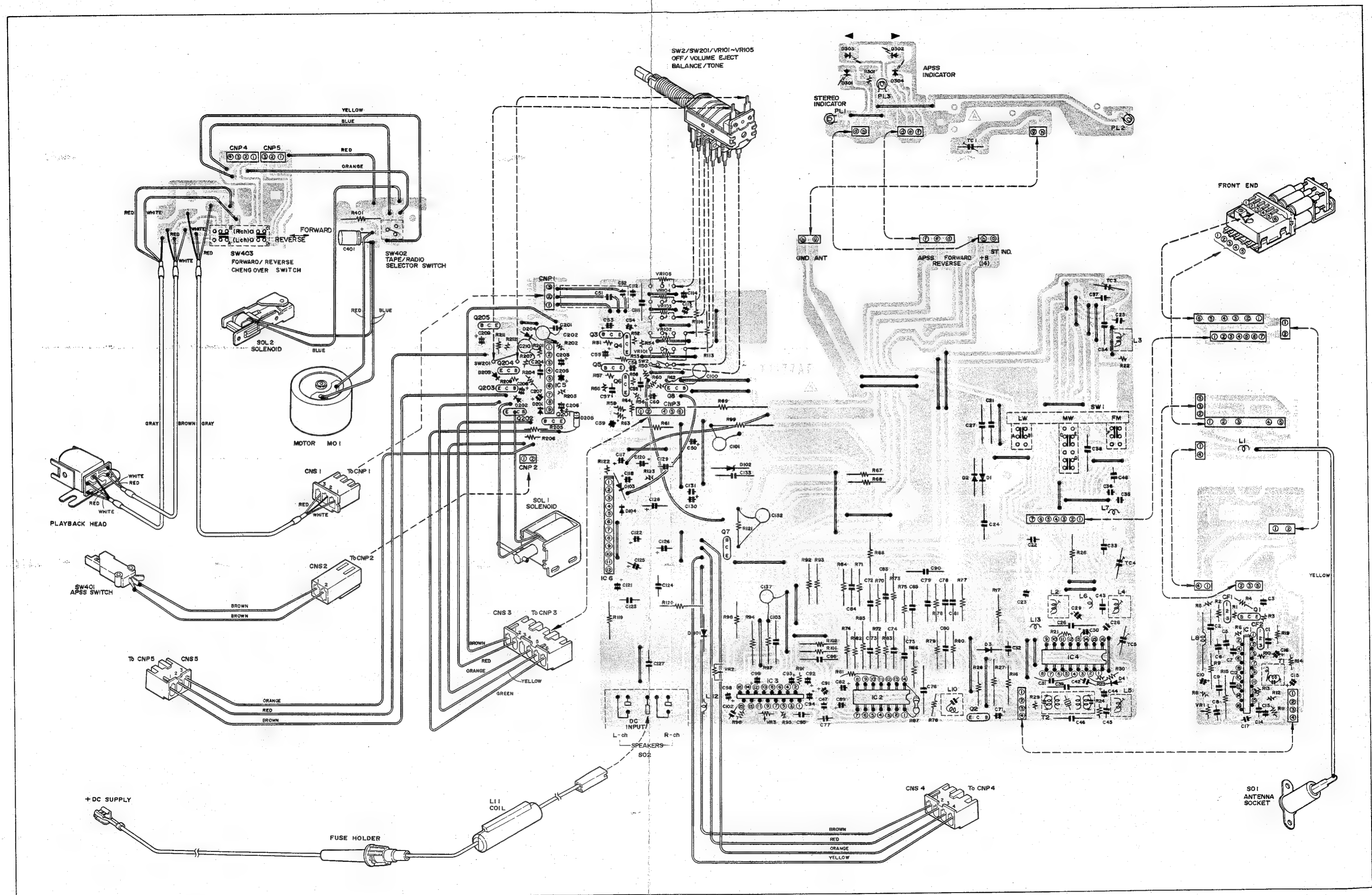
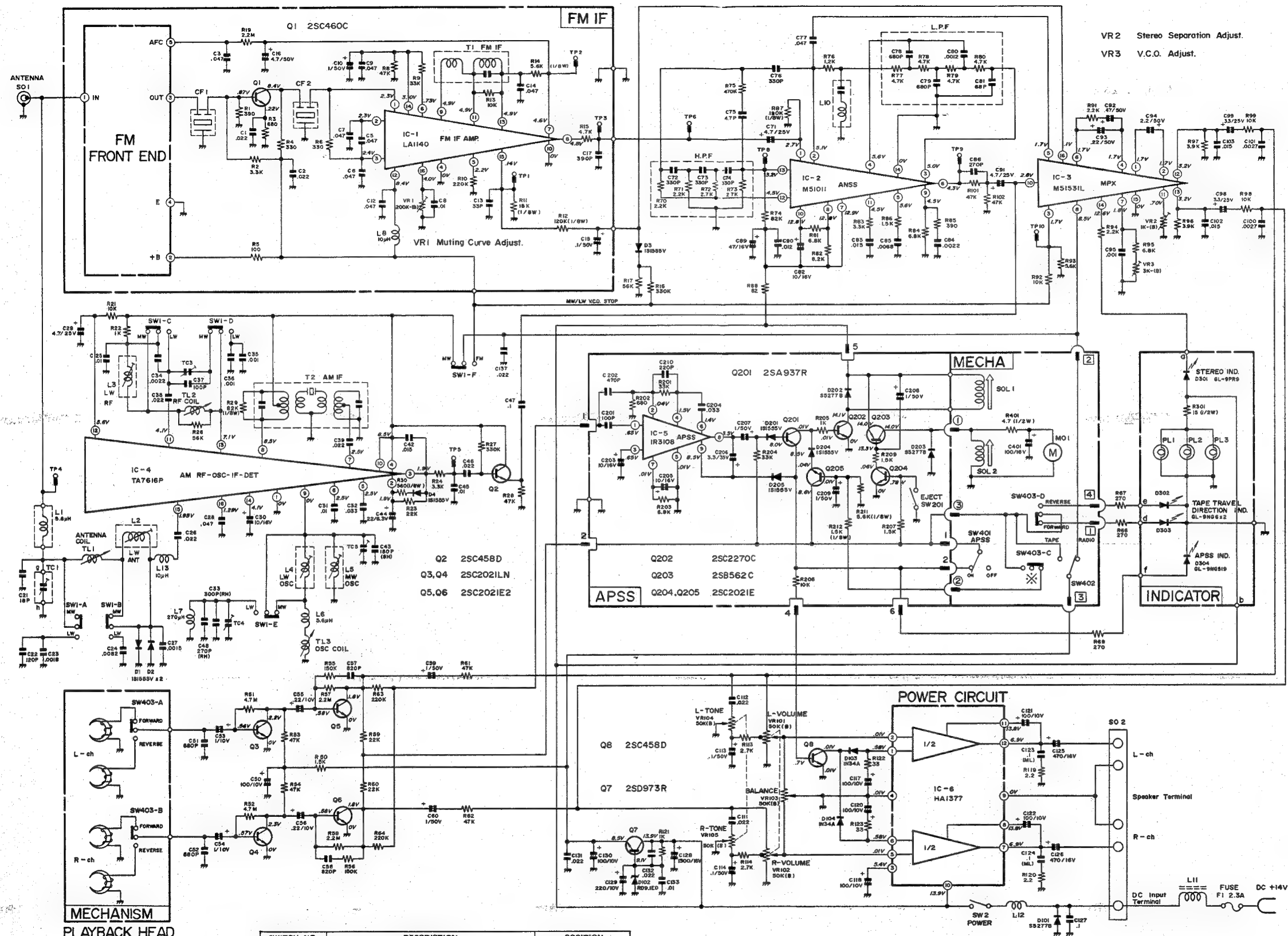


Figure 21 WIRING SIDE OF P.W. BOARD



(Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.)

Figure 23 SCHEMATIC DIAGRAM

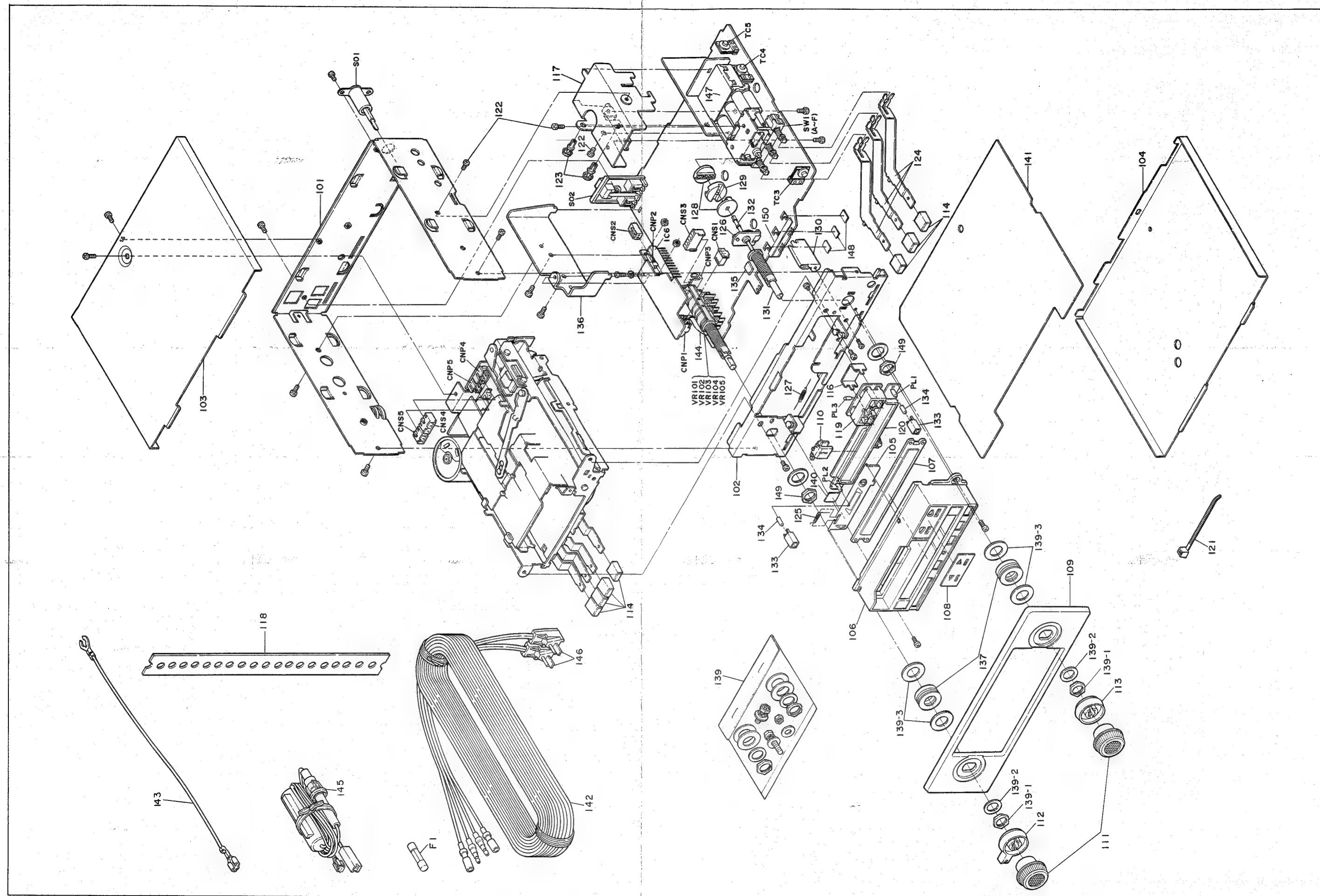
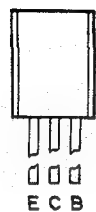


Figure 26 CABINET EXPLODED VIEW



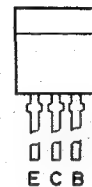
2SB562C

Q203



2SC458D

Q2, Q8



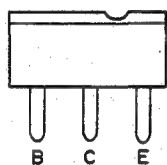
2SC460C

Q1



2SC2270

Q202

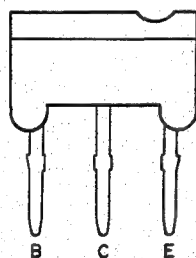


2SC2021LN
2SC2021E2
2SC2021E

Q3, Q4

Q5, Q6

Q204, Q205



2SD973R
2SA937R

Q7

Q201

Figure 27 TRANSISTORS TYPE

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
INTEGRATED CIRCUITS				D302, D303, D304	VHPGL-9NG6/-1	Tape Travel Direction Indicator (Green) (GL-9NG6)	AC
IC1	VHILA1140//1F	FM IF Amp. (LA1140)	AK		VHPGL-9NG519F	LED, APSS Indicator (Yellow Green) (GL-9NG519)	AD
IC2	VHIM51011//1F	ANSS Circuit (M51011)	AG	COILS			
IC3	VHIM51531L/1F	FM M.P.X (M51531L)	AK	L1	RCILC0061AFZZ	Choke, 5.6μH	AB
IC4	VHITA7616P/1F	AM RF/OSC/IF Detector (TA7616P)	AK	L2	RCILA0301AFZZ	LW Antenna Coil	AD
IC5	VHIIR3108//1	APSS Circuit (IR3108)	AK	L3	RCILA0301AFZZ	LW RF Coil	AD
IC6	VHIHA1377//1F	Power, Amplifier (HA1377)	AR	L4	RCILB0474AFZZ	LW Oscillator	AD
TRANSISTORS				L5	RCILB0475AFZZ	MW Oscillator	AD
Q1	VS2SC460-C/-1	FM IF Amp. (2SC460C)	AC	L6	RCILC0074AFZZ	MW Oscillator, 5.6μH	AB
Q2	VS2SC458-D/-1	Impedance Converter (2SC458D)	AB	L7	RCILC0075AFZZ	LW Oscillator, 270μH	AB
Q3, Q4	VS2SC2021LNS1	1st Pre-amplifier (2SC2021LN)	AC	L8	VP-CH100K0000	Choke	AB
Q5, Q6	VS2SC2021E21F	2nd Pre-amplifier (2SC2021E2)	AB	L10	RCILZ0085AFZZ	Trap, 19kHz	AE
Q7	VS2SD973-R/-1	Voltage Regulator (2SD973R)	AC	L12	RCILF0067AFZZ	Choke	AC
Q8	VS2SC458-D/-1	APSS Muting (2SC458D)	AB	L13	RCILC0077AFZZ	Noise	AE
Q201	VS2SA937-R/-1	APSS Solenoid Control (2SA937R)	AC	TL1, TL2, TL3	Not Available	Tuner Unit Assembly (Part of RTUNC0140AFZZ)	
Q202	VS2SC2270C/-1	APSS Solenoid Drive (2SC2270C)	AF	TRANSFORMERS			
Q203	VS2SB562-C/-1	Motor, Play Lock Solenoid Drive (2SB562C)	AD	T1	RCILIO269AFZZ	FM IFT	AE
Q204	VS2SC2021E/-1	Motor, Play Lock Solenoid Control (2SC2021E)	AE	T2	RFILA0007AFZZ	AM IFT	AH
Q205	VS2SC2021E/-1	FF/REW Release (2SC2021E)	AE	FILTERS			
DIODES				CF1, CF2	RFILF0080AFZZ	Ceramic Filter, 10.7MHz	AD
D1, D2	VHD1S1555V/1G	AM Detector Circuit Static Protector (1S1555V)	AB	CONTROLS			
D3	VHD1S1555V/1G	ASTS Control (1S1555V)	AB	TC1	RTO-A1057AFZZ	Trimmer, MW Antenna	AD
D4	VHD1S1555V/1G	AM Detector Circuit (1S1555V)	AB	TC3	RTO-A1053AFZZ	Trimmer, MW RF	AD
D101	VHDS5277B//1	Protector (S5277B)	AB	TC4	RTO-A1053AFZZ	Trimmer, LW Oscillator	AD
D102	VHERD9.1ED/-1	Zener Diode (9.1V), Voltage Regulator (RD9.1ED)	AB	TC5	RTO-A1052AFZZ	Trimmer, MW Oscillator	AD
D103, D104	VHD1N34A///-1	Reverse Current Protector (1N34A)	AB	VR1	RVR-M0174AFZZ	200K ohm (B), Muting Curve Adjust	AC
D201	VHD1S1555V/1G	Reverse Current Protector (1S1555V)	AB	VR2	RVR-M0305AFZZ	1K ohm (B), Stereo Separation Adjust	AD
D202	VHDS5277B//1	Protector (S5277B)	AB	VR3	RVR-M0167AFZZ	3K ohm (B), V.C.O. Adjust	AC
D203	VHDS5277B//1	Protector (S5277B)	AB	VR101, VR102, VR103, VR104, VR105	RVR-B0239AFZZ	50K ohm (B) x 5 VR101: Volume (Left) VR102: Volume (Right) VR103: Balance Volume VR104: Tone Volume (Left) VR105: Tone Volume (Right) Assembly with Power Switch (SW2)	AV
D204	VHD1S1555V/1G	Reverse Current Protector (1S1555V)	AB				
D205	VHD1S1555V/1G	Reverse Current Protector (1S1555V)	AB				
D301	VHPGL-9PR9/-1	LED, FM Stereo Indicator (Red) (GL-9PR9)	AC				

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
ELECTROLYTIC CAPACITORS				C14	VCTYPU1EX473M	.047MFD, 25V, $\pm 20\%$, Semiconductor	
C10	RC-EZ1115AFZZ	1MFD, 50V, $\pm 20\%$	AD	C17	VCRYPU1HB391J	390PF, 50V, $\pm 5\%$, Ceramic	
C15	RC-EZ1138AFZZ	.1MFD, 50V, $\pm 20\%$	AB	C21	VCCSAT1HL180J	18PF, 50V, $\pm 5\%$, Ceramic	
C16	RC-EZ1118AFZZ	4.7MFD, 50V, $\pm 20\%$	AB	C22	VCRYPU1HB121J	120PF, 50V, $\pm 5\%$, Ceramic	
C29	RC-EZ1109AFZZ	4.7MFD, 25V, $\pm 20\%$	AB	C23	VCTYPU1EX182J	.0018MFD, 25V, $\pm 5\%$, Semiconductor	
C30	RC-EZ1106AFZZ	10MFD, 16V, $\pm 20\%$	AE	C24	VCTYAT1EX822K	.0082MFD, 25V, $\pm 10\%$, Semiconductor	
C44	RC-EZ1100AFZZ	22MFD, 6.3V, $\pm 20\%$	AB	C25	VCTYPU1EX103K	.01MFD, 25V, $\pm 10\%$, Semiconductor	
C50	RC-EZS107AF1A	100MFD, 10V, $\pm 20\%$	AB	C26	VCTYAT1CY223N	.022MFD, 16V, $\pm 30\%$, Semiconductor	
C53, C54	VCAAKU1AA105M	1MFD, 10V, $\pm 20\%$, Aluminum	AC	C27	VCTYAT1HV152K	.0015MFD, 50V, $\pm 10\%$, Semiconductor	
C55, C56	VCAAKU1AA224M	.22MFD, 10V, $\pm 20\%$, Aluminum	AB	C28	VCTYPU1EX473M	.047MFD, 25V, $\pm 20\%$, Semiconductor	
C59, C60	RC-EZ1115AFZZ	1MFD, 50V, $\pm 20\%$	AD	C31	VCTYAT1EX103M	.01MFD, 25V, $\pm 20\%$, Semiconductor	
C71	RC-EZ1109AFZZ	4.7MFD, 25V, $\pm 20\%$	AB	C32	VCTYPU1EX333M	.033MFD, 25V, $\pm 20\%$, Semiconductor	
C82	RC-EZ1106AFZZ	10MFD, 16V, $\pm 20\%$	AE	C33	VCCRP1HH301J	300PF, (RH), 50V, $\pm 5\%$, Ceramic	
C89	RC-EZS476AF1C	47MFD, 16V, $\pm 20\%$	AB	C34	VCTYAT1HV222K	.0022MFD, 50V, $\pm 10\%$, Semiconductor	
C91	RC-EZ1109AFZZ	4.7MFD, 25V, $\pm 20\%$	AB	C35, C36	VCTYPU1EX102J	.001MFD, 25V, $\pm 5\%$, Semiconductor	
C92	RC-EZ1114AFZZ	.47MFD, 50V, $\pm 20\%$	AB	C37	VCCSAT1HL101J	100PF, 50V, $\pm 5\%$, Ceramic	
C93	RC-EZ1139AFZZ	.22MFD, 50V, $\pm 20\%$	AB	C38, C39	VCTYAT1CY223N	.022MFD, 16V, $\pm 30\%$, Semiconductor	
C94	RC-EZ1116AFZZ	2.2MFD, 50V, $\pm 20\%$	AB	C42	VCTYPU1EX153K	.015MFD, 25V, $\pm 10\%$, Semiconductor	
C98, C99	RC-EZ1111AFZZ	3.3MFD, 35V, $\pm 20\%$	AB	C43	VCCSPU1HH181J	180PF, (SH), 50V, $\pm 5\%$, Ceramic	
C113, C114	RC-EZ1138AFZZ	0.1MFD, 50V, $\pm 20\%$	AB	C45	VCTYPU1EX103K	.01MFD, 25V, $\pm 10\%$, Semiconductor	
C117, C118, C120, C121, C122	RC-EZS107AF1A	100MFD, 10V, $\pm 20\%$	AB	C46	VCTYAT1CY223N	.022MFD, 16V, $\pm 30\%$, Semiconductor	
C125, C126	RC-EZS477AF1C	470MFD, 16V, $\pm 20\%$	AC	C47	VCTYPU1EX104K	.1MFD, 25V, $\pm 10\%$, Semiconductor	
C128	RC-EZ1075AFZZ	1500MFD, 16V, $\pm 20\%$	AE	C48	VCCRP1HH271J	270PF, (RH), 50V, $\pm 5\%$, Ceramic	
C129	RC-EZS227AF1A	220MFD, 10V, $\pm 20\%$	AB	C51, C52	VCKYPU1HB681K	680PF, 50V, $\pm 10\%$, Ceramic	
C130	RC-EZS107AF1A	100MFD, 10V, $\pm 20\%$	AB	C57, C58	VCRYPU1HB821J	820PF, 50V, $\pm 5\%$, Ceramic	
C203, C205	RC-EZ1106AFZZ	10MFD, 16V, $\pm 20\%$	AE	C72, C73	VCKYAT1HB331K	330PF, 50V, $\pm 10\%$, Ceramic	
C206	RC-EZ1111AFZZ	3.3MFD, 35V, $\pm 20\%$	AB	C74	VCKYAT1HB331K	330PF, 50V, $\pm 10\%$, Ceramic	
C207, C208, C209	RC-EZ1115AFZZ	1MFD, 50V, $\pm 20\%$	AD	C75	VCCSAT1HL4R7C	4.7PF, 50V, $\pm 0.25\%$, Ceramic	
C401	RC-EZS107AF1C	100MFD, 16V, $\pm 20\%$	AB	C76	VCKYAT1HB331K	330PF, 50V, $\pm 10\%$, Ceramic	
CAPACITORS				C77	VCTYPU1EX473M	.047MFD, 25V, $\pm 20\%$, Semiconductor	
C1	VCTYPU1EX223M	.022MFD, 25V, $\pm 20\%$, Semiconductor		C78, C79	VCKYAT1HB681K	680PF, 50V, $\pm 10\%$, Ceramic	
C2	VCTYAT1CY223N	.022MFD, 16V, $\pm 30\%$, Semiconductor		C80	VCKYAT1HB122K	.0012MFD, 50V, $\pm 10\%$, Ceramic	
C3	VCTYPU1EX473M	.047MFD, 25V, $\pm 20\%$, Semiconductor		C81	VCCSAT1HL680J	68PF, 50V, $\pm 5\%$, Ceramic	
C5, C6, C7	VCTYPU1EX473M	.047MFD, 25V, $\pm 20\%$, Semiconductor		C83	VCTYAT1EX153N	.015MFD, 25V, $\pm 30\%$, Semiconductor	
C8	VCTYPU1EX103M	.01MFD, 25V, $\pm 20\%$, Semiconductor		C84	VCTYAT1EX222N	.0022MFD, 25V, $\pm 30\%$, Semiconductor	
C9, C12	VCTYPU1EX473M	.047MFD, 25V, $\pm 20\%$, Semiconductor					
C13	VCCSPU1HL330J	33PF, 50V, $\pm 5\%$, Ceramic					

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
C85	VCTYAT1EX682N	.0068MFD, 25V, $\pm 30\%$, Semiconductor	AB	R50	VRD-SU2EE152J	1.5K ohm	
C86	VCKYAT1HB271K	270PF, 50V, $\pm 10\%$, Ceramic		R51, R52	VRD-SU2EE475J	4.7 Meg ohm	
C90	VCTYAT1EX123K	.012MFD, 25V, $\pm 10\%$, Semiconductor		R53, R54	VRD-SU2EE473J	47K ohm	
C95	VCQSMU1HS102J	.001MFD, 50V, $\pm 5\%$, Styrol		R55, R56	VRD-SU2EE154J	150K ohm	
C100, C101	VCTYPU1EX272K	.0027MFD, 25V, $\pm 10\%$, Semiconductor		R57, R58	VRD-SU2EE225J	2.2 Meg ohm	
C102	VCTYPU1EX153K	.015MFD, 25V, $\pm 10\%$, Semiconductor		R59, R60	VRD-SU2EE223J	22K ohm	
C103	VCTYAT1EX153N	.015MFD, 25V, $\pm 30\%$, Semiconductor		R61, R62	VRD-SU2EE473J	47K ohm	
C111	VCKYAT1CY223N	.022MFD, 16V, $\pm 30\%$, Ceramic		R63, R64	VRD-SU2EE224J	220K ohm	
C112	VCTYPU1EX223K	.022MFD, 25V, $\pm 10\%$, Semiconductor		R67, R68, R69	VRD-ST2EE271J	270 ohm	
C123, C124	VCQYKU1HM104M	.1MFD, 50V, $\pm 20\%$, Mylar	AC	R70, R71	VRD-ST2EE222J	2.2K ohm	
C127	VCKZPU1HF104Z	.1MFD, 50V, $+80 -20\%$, Ceramic		R72	VRD-ST2EE272J	2.7K ohm	
C131, C132	VCTYPU1EX223K	.022MFD, 25V, $\pm 10\%$, Semiconductor		R73	VRD-ST2EE273J	27K ohm	
C133	VCTYAT1EX103M	.01MFD, 25V, $\pm 20\%$, Semiconductor		R74	VRD-ST2EE823J	82K ohm	
C137	VCTYPU1EX223K	.022MFD, 25V, $\pm 20\%$, Semiconductor		R75	VRD-ST2EE474J	470K ohm	
C201	VCRYPU1HB101J	100PF, 50V, $\pm 5\%$, Ceramic		R76	VRD-SU2EE122J	1.2K ohm	
C202	VCKYPU1HB471K	470PF, 50V, $\pm 10\%$, Ceramic		R77, R78, R79, R80	VRD-ST2EE472J	4.7K ohm	
C204	VCTYPU1EX333K	.033MFD, 25V, $\pm 10\%$, Semiconductor		R81	VRD-ST2EE682J	6.8K ohm	
C210	VCRYPU1HB221J	220PF, 50V, $\pm 5\%$, Ceramic		R82	VRD-ST2EE822J	8.2K ohm	
				R83	VRD-ST2EE332J	3.3K ohm	
				R84	VRD-ST2EE682J	6.8K ohm	
				R85	VRD-ST2EE391J	390 ohm	
				R86	VRD-ST2EE152J	1.5K ohm	
				R87	VRD-ST2BB184J	180K ohm, 1/8W, $\pm 5\%$, Carbon	
				R88	VRD-ST2EE820J	82 ohm	
				R91	VRD-SU2EE222J	2.2K ohm	
				R92	VRD-ST2EE103J	10K ohm	
				R93	VRD-ST2EE562J	5.6K ohm	
				R94	VRD-ST2EE222J	2.2K ohm	
				R95	VRD-SU2EE682J	6.8K ohm	
				R96	VRD-SU2EE392J	3.9K ohm	
				R97	VRD-ST2EE392J	3.9K ohm	
				R98, R99	VRD-ST2EE103J	10K ohm	
				R101, R102	VRD-ST2EE473J	47K ohm	
				R113, R114	VRD-ST2EE272J	2.7K ohm	
				R119, R120	VRD-ST2EE2R2J	2.2 ohm	
				R121	VRD-ST2EE102J	1K ohm	
				R122, R123	VRD-SU2EE330J	33 ohm	
				R201	VRD-SU2EE333J	33K ohm	
				R202	VRD-SU2EE681J	680 ohm	
				R203	VRD-SU2EE682J	6.8K ohm	
				R204	VRD-SU2EE333J	33K ohm	
				R205	VRD-SU2EE102J	1K ohm	
				R206	VRD-SU2EE103J	10K ohm	
				R207, R209	VRD-SU2EE152J	1.5K ohm	

RESISTORS

(Unless otherwise specified resistors are 1/4W, $\pm 5\%$, Carbon type.)

R1	VRD-SU2EE391J	390 ohm
R2	VRD-SU2EE332J	3.3K ohm
R3	VRD-SU2EE681J	680 ohm
R4	VRD-SU2EE331J	330 ohm
R5	VRD-SU2EE101J	100 ohm
R6	VRD-SU2EE331J	330 ohm
R8	VRD-SU2EE473J	47K ohm
R9	VRD-ST2EE333J	33K ohm
R10	VRD-SU2EE224J	220K ohm
R11	VRD-SU2BB183J	18K ohm, 1/8W, $\pm 5\%$, Carbon
R12	VRD-SU2BB124J	120K ohm, 1/8W, $\pm 5\%$, Carbon
R13	VRD-SU2EE103J	10K ohm
R14	VRD-SU2BB562J	5.6K ohm, 1/8W, $\pm 5\%$, Carbon
R15	VRD-ST2EE472J	4.7K ohm
R16	VRD-ST2EE334J	330K ohm
R17	VRD-ST2EE563J	56K ohm
R19	VRD-SU2EE225J	2.2 Meg ohm
R21	VRD-SU2EE103J	10K ohm
R22	VRD-SU2EE102J	1K ohm
R23	VRD-SU2EE223J	22K ohm
R24	VRD-SU2EE332J	3.3K ohm
R26	VRD-ST2EE563J	56K ohm
R27	VRD-ST2EE334J	330K ohm
R28	VRD-ST2EE473J	47K ohm
R29	VRD-SU2BB823J	82K ohm, 1/8W, $\pm 5\%$, Carbon
R30	VRD-SU2BB561J	560 ohm, 1/8W, $\pm 5\%$, Carbon

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
R211	VRD-ST2BB562J	5.6K ohm, 1/8W, ±5%, Carbon		55	MSPRD0324AFFJ	Spring, Pinch Roller Lever (Left)	
R212	VRD-SU2BB152J	1.5K ohm, 1/8W, ±5%, Carbon		56	MSPRD0325AFFJ	Spring, Mode Lever Lock	
R301	VRD-ST2HA150J	15 ohm, 1/2W, ±5%, Carbon		57	MSPRD0326AFFJ	Spring, Cassette Half Lock	
R401	VRC-MT2HG4R7J	4.7 ohm, 1/2W, ±5%, Solid		58	MSPRD0327AFFJ	Spring, Lock Loading Gear	AA
				59	MSPRD0328AFFJ	Spring, Lock Reversing Gear	
				60	MSPRD0329AFFJ	Spring, Fast-forward/Rewind Shift Lever	
				61	MSPRP0190AFFJ	Spring, Head Azimuth Adjust	AB
				62	MSPRP0254AFZZ	Spring, Plate Type, Select Lever	AC
				63	MSPRT0728AFFJ	Spring, Loading Gear	
				64	MSPRT0729AFFJ	Spring, Play Set Lever	
				65	MSPRT0730AFFJ	Spring, Half Eject	
				66	MSPRT0731AFFJ	Spring, Back Pinch Roller Lever	
				67	MSPRP0264AFFJ	Spring, Plate Type Head Base	AA
				68	MSPRT0733AFFJ	Spring, Program Lever	
				69	MSPRT0734AFFJ	Spring, Idler Lever	
				70	MSPRT0735AFFJ	Spring, Program Lever	
				71	MSPRT0736AFFJ	Spring, Fast-forward/Rewind Lever	
				72	NBLTK0186AFZZ	Belt, Flywheel Drive	AD
				73	NBLTK0187AFZZ	Belt, Gear Drive	AC
				74	NDAIR0153AFSA	Turntable	AH
				75	NFLYC0092AFZZ	Flywheel	AH
				76	NIDR-0076AFZZ	Gear, Play Idler	AC
				77	NPLYR0077AFZZ	Pulley, Flywheel	AB
				78	NPLYR0078AFZZ	Pulley, Reversing	AC
				79	NROLP0062AFZZ	Gear (B)	AA
				80	NROLP0065AFZZ	Tape End Detect Cam Gear	AB
				81	NROLP0066AFZZ	Gear, Reversing	AD
				82	NROLP0067AFZZ	Gear, Loading	AD
				83	NROLP0068AFZZ	Gear, Middle	AB
				84	NROLV0018AFZZ	Gear, Fast-forward/Rewind	AH
				85	NROLY0040AFZZ	Pinch Roller (Right)	AF
				86	NROLY0039AFZZ	Pinch Roller (Left)	AF
				87	PGUMM0111AF00	Cushion Rubber	AB
				88	QPWBF1172AFZZ	P.W. Board, Switch	
				89	RHEDF0064AFZZ	Playback Head	AX
				90	PSPAA0054AFFW	Spacer, Motor	
				91	MLEVF1176AFFW	Lever, Half Set	
				92	LANGA0088AFFW	Lever, Mechanism Retaining	
				93	PCOVU7124AF00	Cover, Screen, Light	
				94	MSPRT0758AFFJ	Spring, Half Set	
				95	MLEVF1175AFZZ	Cassette Holder	
MECHANICAL PARTS				MISCELLANEOUS			
1	LANGF0587AFZZ	Bracket, Flywheel	AK	101	GCABA3567AFFW	Cabinet, Rear (Large)	AG
2	LANGT0996AFFW	Bracket, Back Tension	AA	102	GCABB3567AFFW	Cabinet, Front	AH
3	LCHSM0366AFZZ	Mechanism Chassis		103	GCABC3567AFFW	Cabinet, Top	AE
4	LHLDX3069AFZZ	Cassette Holder	AH	104	GCABD3567AFFW	Cabinet, Bottom	AE
5	LSLVM0094AFFW	Sleeve, Pinch Roller Back Lever	AB	105	GFTAC1144AFSA	Cassette Compartment Lid	AF
6	LSLVM0095AFFW	Sleeve, Head Base Guide		106	GWAKP1093AFSA	Nose Piece	AK
7	LSLVM0096AFFW	Sleeve, Eject Interlocking Lever		107	HDALP0456AFSA	Dial Plate	AE
8	LSLVM0097AFFW	Sleeve, Cassette Holder		108	HINDM1446AFSA	Plate, Expression	AC
9	LSLVM0098AFFW	Sleeve, Reversing Gear		109	HPNLC1323AFSA	Operation Panel	AG
10	LSLVM0099AFFW	Sleeve, Play Set Lever Guide	AA	110	HSSND0273AFSA	Dial Pointer	AD
11	LSLVM0100AFFW	Spacer, Tape End Detect Spring		111	JKNBK0203AFSA	Knob, Power Switch/Volume/Tuning Control	AE
13	LSLVM0102AFFW	Sleeve, Mode Lock Lever		112	JKNBK0204AFSA	Knob, Tone Control	AF
14	LSLVM0103AFFW	Sleeve, Mode Lock Lever		113	JKNBK0220AFSA	Knob, Decoration	AF
16	LSLVM0106AFFW	Sleeve, Head Base Guide		114	JKNBP0119AFSA	Knob, FF/APSS/REW/Program/LW/MW/FM Button	AC
17	LX-BZ0215AFZZ	Screw, Flywheel Thrust Adjustment	AB				
18	LX-BZ0249AFFF	Screw, Tape End Detect Lever					
19	LX-BZ0252AFFD	Screw, Reversing Gear					
20	LCHSS0161AFZZ	Head Base	AA				
25	LX-WZ9067AFZZ	Washer, Play Idler					
26	LX-WZ9068AFZZ	Washer, Tape End Detect Spring					
27	MLEVF1128AFFW	Lever, Fast-forward	AC				
28	MLEVF1129AFFW	Lever, Rewind	AC				
29	MLEVF1130AFFW	Lever, APSS	AC				
30	MLEVF1131AFFW	Lever, Lock Reversing Gear	AB				
31	MLEVF1132AFFW	Lever, Lock Loading Gear	AC				
32	MLEVF1133AFFW	Lever, Reversing Drive	AC				
33	MLEVF1134AFFW	Lever, Back Pinch Roller (Left)	AC				
34	MLEVF1135AFZZ	Lever, Mode Lock	AC				
35	MLEVF1136AFFW	Lever, Reverse	AB				
36	MLEVF1137AFZZ	Lever, Play Set	AE				
37	MLEVF1138AFZZ	Lever, Loading	AD				
38	MLEVF1139AFFW	Lever, Cassette Half Lock (A)	AB				
39	MLEVF1140AFFW	Lever, Cassette Half Lock (B)	AB				
40	MLEVF1141AFZZ	Program Lever (B)	AB				
41	MLEVF1142AFFW	Lever, Back Pinch Roller (Right)	AB				
42	MLEVF1143AFFW	Lever, Eject Interlocking	AC				
43	MLEVF1144AFZZ	Lever, Rail	AG				
44	MLEVF1146AFZZ	Base, Gear	AG				
45	MLEVF1147AFZZ	Bracket, Cassette Holder	AF				
46	MLEVF1157AFFW	Program Lever (A)	AC				
47	MLEVP0252AFZZ	Tape End Detect Lever	AC				
48	MLEVP0253AFZZ	Brake Lever	AB				
49	MLEVP0254AFZZ	Cassette Half Ejector	AC				
50	MSPRB0052AFFJ	Spring, Pinch Roller Release					
51	MSPRC0233AFFJ	Spring, Reversing Solenoid	AA				
52	MSPRC0234AFFJ	Spring, Tape End Detect Lever	AA				
53	MSPRD0322AFFJ	Spring, Head Base Action	AB				
54	MSPRD0323AFFJ	Spring, Pinch Roller Lever (Right)	AA				

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
116	LANGQ0809AFFW	Bracket, P.W. Board Retaining	AB	146	QPLGD0201AFZZ	Speaker Plug Assembly	AC
117	LANGR0517AFFW	Bracket, Tuner Unit	AD	SO2	QSOC0271AFZZ	Terminal, Speaker/DC Input	AG
118	LANGT0071AFFW	Plate, Back Strap	AB	SO1	QSOCZ0015AFZZ	Antenna (Aerial) Socket	AC
119	LHLDF1243AFZZ	LED Holder	AC	SW1	QSW-P0299AFZZ	Switch, Band Selector	AL
120	LHLDF1244AF00	Holder, P.W. Board Retaining	AD	(A ~ F)			
121	LHLDW1075AFZZ	Nylon Band, 60mm	AA	SW2,		Switch, Power (SW2)/Eject	
122	LX-BZ0296AFZZ	Screw, 3mm Dia. x 3mm (Red)	AA	SW201	Not Available	(SW201) Part of	
123	LX-LZ0051AF00	Push Rivet, P.W. Board Retaining	AA	SW401	QSW-F0136AFZZ	RVR-B0239AFZZ	AD
124	MLEVF1156AFFW	Band Selector Switch Lever	AB	SW402	QSW-F0137AFZZ	Switch, APSS	AE
125	MSPRD0330AFFW	Spring, Cassette Compartment	AA	SW403	QSW-S0303AFZZ	Switch, Radio/Tape Selector	
126	MSPRP0257AFFW	Plate Spring, Tuning Shaft	AA	(A ~ D)		Switch, Program Selector	AF
127	CSPRT0321AF08	Dial Cord Assembly	AA	PL1,			
128	NIDR-0063AFZZ	Coupling, Tuning Shaft	AB	PL2,	RLMPM0069AFZZ	Lamp, Dial Illumination	AD
129	NIDR-0064AFZZ	Coupling, Tuning Shaft	AB	PL3			
130	NPLYD0057AFZZ	Pulley, Dial Stringing	AC	SOL1	RPLU-0115AFZZ	Solenoid, Play Lock	AL
131	NSFTZ0074AFFW	Tuning Shaft	AG	SOL2	RPLU-0116AFZZ	Solenoid, APSS	AK
132	NSFTZ0075AFFW	Shaft, Dial Stringing	AD	MO1	RMOTM0095AFZZ	Motor	AU
133	PCOVU3127AFFW	Holder Cover, Lamp	AB	147	RTUNC0140AFZZ	Tuner Unit Assembly	AY
134	PCOVU8055AFZZ	Rubber, Cover, Lamp	AA	148	PFLT-0130AG00	Felt	AA
135	PGUMS0140AF00	Cushion, Rubber	AA	149	LX-NZ0058AFFD	Nut	AA
136	PRDAR0242AFFW	Heat Sink	AF	150	PFLT-0453AF00	Felt	AA
137	PSPAZ0074AFZZ	Spacer, Operation Panel	AD		SPAKA0729AFZZ	Packing Add	AD
139	PSPAZ0087AFZZ	Spacer Unit (Screw, Nut, Washer)	AD		SPAKC1637AFZZ	Packing Case	AE
139-1	Not Available	Nut, Part of PSPAZ00087AFZZ			SPAKC1640AFZZ	Packing Case (for Italy)	AE
139-2	Not Available	Washer, Part of PSPAZ0087AFZZ			SPAKX0266AFZZ	Case, Accessory Parts	AB
139-3	Not Available	Spacer, Part of PSPAZ0087AFZZ			SSAKH0006AFZZ	Polyethylene Bag, Unit	AA
140	PTPEH0112AFZZ	Protection tape	AA		TCAUZ0039AFZZ	Label, Caution	AA
141	PZETF0155AFZZ	Insulator, Bottom Cover	AD		TINSE0698AFZZ	Operation Manual (English Only)	AD
CNP1	QCNCM434CAFZZ	Plug 3 pin	AA		TINSZ0263AFZZ	Operation Manual (English/German/French/Swedish)	AF
CNP2	QCNCM131BAFZZ	Plug 2 pin	AC		TLABS0079AFZZ	Label, F Mark	AA
CNP3	QCNCM402FAFZZ	Plug 6 pin	AC		TLABZ0124AFZZ	Label, ANSS	AA
CNP4	QCNCM400DAFZZ	Plug 4 pin	AB		TSPC-0702AFZZ	Specifications	AC
CNP5	QCNCM399CAFZZ	Plug 3 pin	AB		TSPC-0707AFZZ	Specifications (for Italy)	AC
142	QCNW-0321AFZZ	Speaker Lead	AP		TTAG-0066AFZZ	Tag	
143	QCNW-0322AFZZ	Earth Lead	AC		TTAGH0157AFZZ	Tag (English/German/French/Swedish)	
CNS1	QCNW-0939AFZZ	Socket, 3 Pin with Wire Leads	AG				
CNS2	QCNW-0969AFZZ	Socket, 2 Pin with Wire Leads	AD				
CNS3	QCNW-0967AFZZ	Socket, 6 Pin with Wire Leads	AC				
CNS4	QCNW-0968AFZZ	Socket, 4 Pin with Wire Leads	AD				
CNS5	QCNW-0966AFZZ	Socket, 3 Pin with Wire Leads	AD				
144	QCNW-0970AFZZ	Flat Cable, 3 pin	AC				
F1	QFS-A232BAFNH	Fuse, 2.3A	AC				
145, L11	QFSHJ1058AFZZ	DC Supply Lead (With Coil, Fuse Holder and Socket)	AL				

P.W. BOARD ASSEMBLY

(Not Replacement Item)

DUNTK0081AF02	Main P.W. Board Assembly	—
DUNTR0157AF01	Tuner P.W. Board Assembly	—